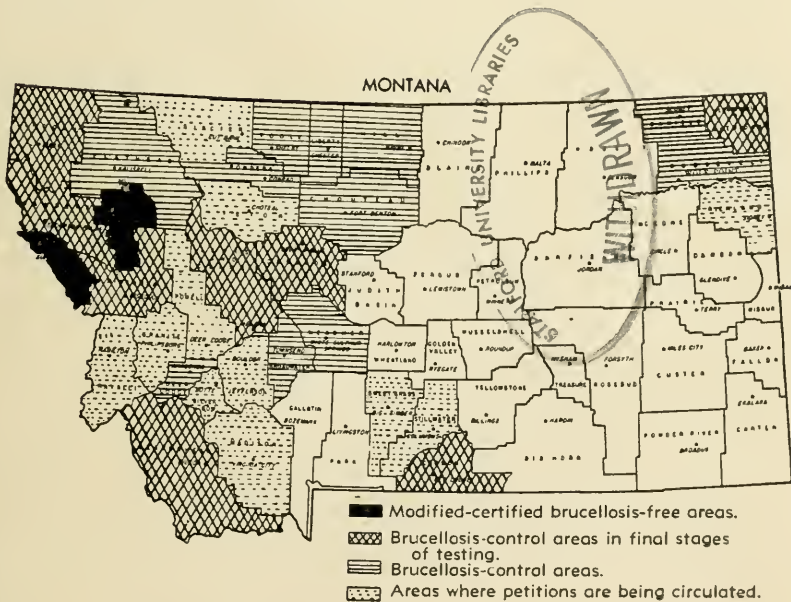


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To the
MONTANA LIVESTOCK SANITARY BOARD
July 1, 1952 -- June 30, 1954



MAP SHOWING THE STATUS OF THE BRUCELLOSIS PROGRAM
JULY 1, 1954

Montana State Library



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Helena, Montana

July 1, 1954

Honorable J. Hugo Aronson,
Governor of Montana
Helena, Montana

Dear Governor Aronson:

In compliance with Title 46, Section 242, Revised Codes of Montana, 1947, we transmit herewith report of the State Veterinary Surgeon to the Montana Livestock Sanitary Board for the period July 1, 1952, through June 30, 1954.

Respectfully submitted,

MONTANA LIVESTOCK SANITARY BOARD

H. F. WILKINS, D.V.M.

Secretary and Executive Officer

MONTANA LIVESTOCK SANITARY BOARD

LYMAN BREWSTER, President, Birney
W. G. RAGEN, Vice-President, Townsend
M. H. TSCHIRGI, Wyola
PETER ITCAINA, Dodson
ARMAND W. TONN, Miles City
CHARLES P. BRENNER, Missoula

H. F. WILKINS, D. V. M.
State Veterinary Surgeon
Executive Officer
Director of Laboratories

HUGH C. BUTLER, B. S., D. V. M.
Assistant to the Executive Officer

A. M. JASMIN, B. S., D. V. M., Bacteriologist & Pathologist
*HADLEIGH MARSH, D. V. M., Veterinary Pathologist
*LOUIS DS. SMITH, B. S., M. S., Ph. D., Associate Bacteriologist
HAZEL HAMMERSLAND, Laboratory Technician
JAMES GLOSSER (Agent) Biological Aid, U. S. D. A.
LOUIS W. CORMIER, Laboratory Assistant

*Located at the Veterinary Research Laboratory, Bozeman, Montana.
Employed jointly by the Veterinary Research Laboratory and the
Livestock Sanitary Board.

E. M. JONESCHILD, B. S., D. V. M.
Head, Field Investigations

MARIE L. HIRSCH, Chief Clerk
TERESA L. CLOPTON, Indemnity Clerk
VIRGINIA L. STRATTON, Secretary to Executive Officer
FLORENCE L. ANDERSON, Stenographer
HARRY C. W. RICHTER, Assistant Clerk

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DR. G. C. HALVÉR, Glendive DR. I. A. PHINNEY, Kalispell
DR. H. W. JACOBSON, Havre DR. E. W. SPRATLIN, Glasgow
DR. F. M. NELSON, Livingston DR. W. E. STAHL, Missoula
DR. G. M. WRIGHT, Billings

JUNIOR DISTRICT DEPUTY STATE VETERINARY SURGEONS

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DR. J. D. MELCHER, Forsyth
DR. L. E. WITT, Sidney

MILK SANITARIANS

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THOMAS F. LOFTHOUSE, M. S., Assistant

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DR. S. OLESKOWICZ, Kalispell
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DR. L. P. SHARP, Lewistown
DR. F. J. YOUNGLOVE, Missoula

LAY INSPECTORS

THOMAS HEGGEN, Jr., Ekalaka
IRA C. MOORE, Great Falls

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Dr. John J. Brown, Deer Lodge	Dr. J. S. McFarland, Polebridge
Dr. Earl Cline, Lewistown	Dr. Fred Metcalf, Drummond
Dr. David Colmey, Livingston	Dr. Robert J. Miser, Plains
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Dr. C. T. DeVore, Hardin	Dr. K. C. Pearson, Butte
Dr. M. P. Doran, Great Falls	Dr. E. M. Pruyn, Missoula
Dr. A. W. Elting, Miles City	Dr. F. B. Remer, Bigfork
Dr. Stanley Flora, Miles City	Dr. H. C. Roquet, Big Timber
Dr. W. H. Gahagan, Absarokee	Dr. Herman Ross, Kalispell
Dr. H. C. Gardiner, Anaconda	Dr. R. J. Rosselot, Laurel
Dr. H. C. Goodell, Great Falls	Dr. Mardell W. Schara, Butte
Dr. Raymond Gustafson, Conrad	Dr. Don K. Shaffner, Dillon
Dr. H. E. Hansen, Billings	Dr. J. M. Smylie, Absarokee
Dr. A. F. Hayes, Billings	Dr. C. E. Stineburg, Chinook
Dr. C. L. Heath, Billings	Dr. R. C. Timmons, Havre
Dr. Howard K. Holloway, Harlowton	Dr. G. L. Utley, Twin Bridges
Dr. Edward L. Johnson, Missoula	Dr. I. W. Vinsel, Dillon
Dr. J. W. Kilpatrick, Hamilton	Dr. Smith Willis, Kalispell
Dr. A. T. Zancanella, Billings	

REPORT TO THE MONTANA LIVESTOCK SANITARY BOARD

Honorable Livestock Sanitary Board
Helena, Montana
Gentlemen:

Helena, Montana
July 1, 1952

In compliance with Title 46, Section 242, Revised Codes of Montana, 1947, we submit the report of the State Veterinary Surgeon and Executive Officer to the Montana Livestock Sanitary Board for the biennium July 1, 1952, through June 30, 1954.

There were ten meetings of the Montana Livestock Sanitary Board held during that period:

A meeting was held in Helena on November 17, 1952.

A special meeting was held in Helena February 17, 1953.

The 1953 annual meeting was held in Helena on March 10th.

A meeting was held in Missoula on May 15, 1953.

A meeting was held in Helena on September 1, 1953.

A meeting was held in Helena on November 17, 1953, and continued in Bozeman on November 18, 1953.

The 1954 annual meeting was held in Helena on March 9, 1954.

A meeting was held in Helena on April 15, 1954, and continued on April 26 and 27, 1954.

A meeting was held in Miles City on May 19, 1954.

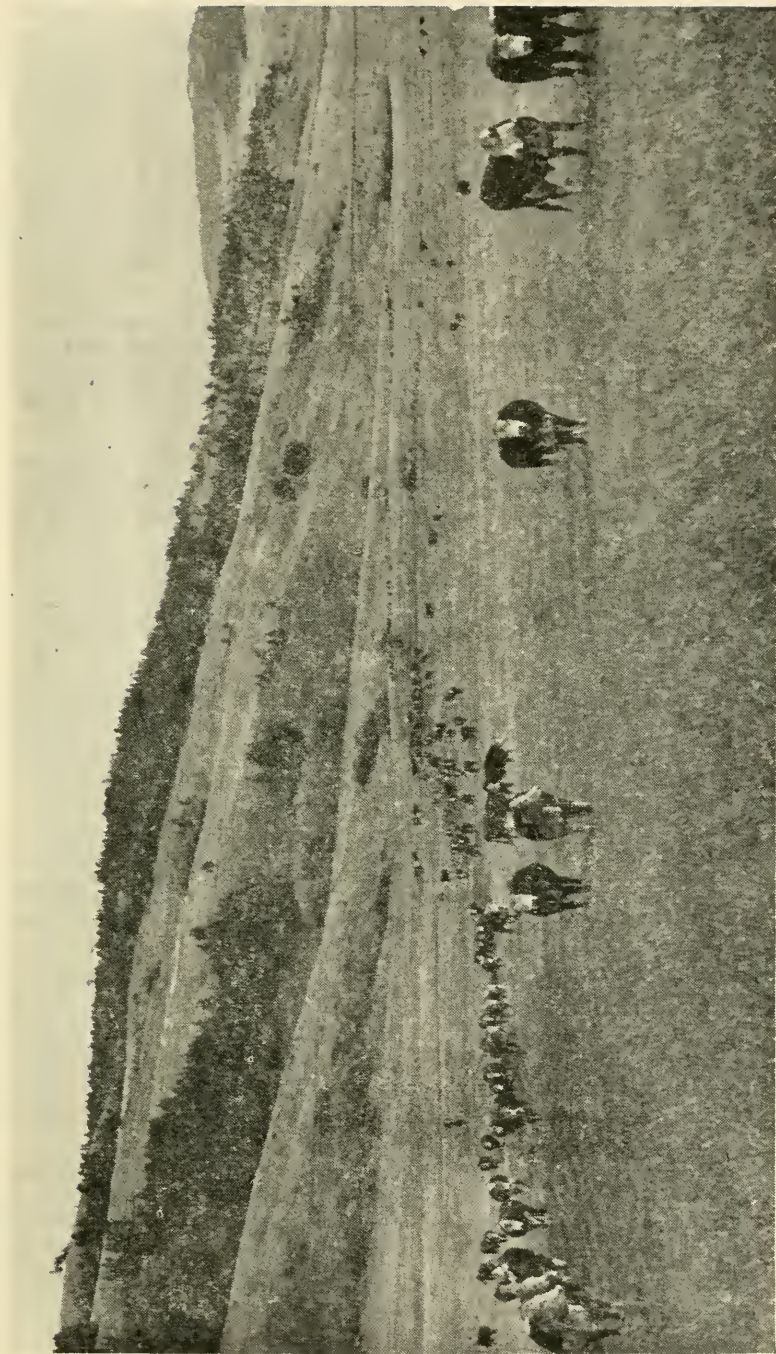
A meeting was held in Helena on June 14, 1954.

At these meetings matters pertaining to the duties of the Montana Livestock Sanitary Board and of interest to the livestock industry were discussed at length and acted upon. All actions, regulations and orders promulgated by the Executive Officer, during the interim between meetings, were approved.

The complete minutes of all meetings are on file in the office of the Secretary, at the Livestock Building in Helena, Montana.

FOREWORD

The past biennium has been a momentous one in the field of disease control and eradication in the United States and especially so in our own State of Montana. We have been particularly fortunate in that no new foreign animal plague, such as foot-and-mouth disease, rinderpest or fowl pest, has been introduced into our country during this period. Also, we have been extremely fortunate in that we have met with such outstanding success in our efforts to eradicate vesicular exanthema in swine, not only throughout the nation but particularly with the outbreak which we had in Montana near Billings in August of 1953. Our brucellosis-control program in Montana has been very successful and the progress made during the past year has far exceeded our fondest expectations; we respectfully refer to you the special report under the heading of "Brucellosis." Too, it is very gratifying that a vaccine has finally been prepared in this country for the prevention of bluetongue in sheep (a new sheep disease probably intro-



Healthy Montana Range Cattle

duced into this country from South Africa a few years ago). This new disease has caused considerable concern and loss in Texas, California, New Mexico and Utah during the past three years. There is every reason to believe that in time it will be introduced into Montana, and unless we have a satisfactory preventive vaccine readily available losses may be very disastrous.

Another milestone in the detection and prevention of disease has been effected in the way of an antigen or an agent to test blood samples to determine animals which are, or have been, infected with leptospirosis, and a vaccine which may be administered for the control of this disease in cattle.

It is noteworthy that 42 states have passed laws or regulations requiring the cooking of all garbage fed to swine, which we feel is a most important measure in the prevention and control of many diseases, and is a sanitary measure which should have been in effect many years ago.

In addition to the preventive measures mentioned, there have been several new pharmaceutical, biological and antibiotic remedies perfected for the treatment of a number of diseases, some of which we will be obliged to live with indefinitely.

Only two years ago we had foot-and-mouth disease within 50 miles of the Montana border. During these threatening times it is to be noted that not a single embargo or quarantine was issued against Montana livestock.

The eradication of animal diseases is of extreme importance to the livestock industry of this country. In reviewing the history of disease eradication it is unbelievable the number of diseases which have been eradicated from the United States as well as the additional diseases which have been eradicated from the State of Montana.

The following diseases have been eradicated from the United States:

1. Foot-and-mouth disease. (There were 9 separate outbreaks—the first in 1870 and last in California in 1929 in a drove of garbage-fed hogs.)
2. Texas fever (piroplasmiasis). (Since 1906 eradication has been carried on continuously by the Agricultural Research Service—formerly the U. S. Bureau of Animal Industry—and the states involved. While eradication has been effected in the United States, the disease exists in Mexico and is occasionally brought across the border by strayed or smuggled cattle.)
3. Contagious pleuropneumonia of cattle. (This is a very devastating disease which was spreading westward rapidly at the time eradication measures were instigated.)
4. Glanders in horses.
5. Dourine in horses.
6. European fowl pest.
7. Asiatic Newcastle disease.

Many other diseases and pests have been prevented from entering the United States through importation quarantine measures and others have been limited in their destructiveness, such as tuberculosis, which has been decreased about 99% since 1916. The incidence of cattle and sheep scabies, brucellosis, hog cholera, and many other diseases has also been materially reduced.

In Montana our accomplishments in the control and eradication of animal diseases have been outstanding. We can enumerate the following diseases as those which have been eradicated and with which we do not now have to constantly contend. They may occasionally be reintroduced but can usually be speedily eradicated without undue loss to the industry.

1. Glanders in horses.
2. Dourine in horses.
3. Scabies in horses.
4. Foot-and-mouth disease (1914).
5. Scabies in cattle. (Three species—psoroptic, sarcoptic and chorioptic—have at one time or another affected Montana cattle.)
6. Tuberculosis in cattle. (No cases of bovine tuberculosis have been diagnosed in Montana cattle by means of the intradermic tuberculin test or through the medium of packing house reports for over three years. Tuberculosis in Montana cattle is a rarity but it is realized that it may in time show up due to the importation of diseased cattle.)
7. Anthrax. (In each instance where the disease has occurred it has been eradicated and extreme sanitary measures carried out. It has not reappeared on any premise even though more than 30 years have elapsed in some instances.)
8. Vesicular exanthema in swine (1953).
9. Atrophic rhinitis in swine.
10. Hog cholera.
11. Sheep scabies.
12. Gid in sheep. (A cystic form of tapeworm that involves the brain.)
13. Foot rot in sheep.
14. Rabies in all species of animals. (The last outbreak of this disease occurred in Billings in 1952.)
15. Fowl pox. (This disease has been eradicated on three separate occasions and is not known to exist in Montana.)

Can anyone visualize the chaotic condition of our livestock industry if these diseases had not been controlled and eradicated? Imagine being obliged to contend with all of these diseases in addition to those now present and those which will appear in the future!

It is the hope of the members of the Montana Livestock Sanitary Board that those who receive this report will take the time to analyze the special report of the Bacteriological Laboratory, the Chemical

Laboratory, the Dairy and Milk Sanitarian, the Meat Inspection Division and the Research Laboratory. Your attention is particularly called to the reports on brucellosis and vesicular exanthema. The accomplishments and amount of constructive work done by this organization have been comparable to those of many states which have spent from \$500,000 to as much as \$2,000,000 annually. We are justly proud of the accomplishments we have made in the control and eradication of diseases over the years and the solving of other sanitary problems under our jurisdiction; however, we are fully aware of our great vulnerability to the introduction and rapid spread of newly introduced foreign animal plaques and of their devastating effect on livestock if not promptly eradicated. A sound disease-control program and a competently staffed and adequately financed Livestock Sanitary Board are essential to the economy and well-being of Montana—a livestock state. THERE IS NO PHASE OF LIVESTOCK PRODUCTION OF MORE IMPORTANCE THAN THE PREVENTION, CONTROL AND ERADICATION OF DISEASE, AND THERE IS NO INDUSTRY IN MONTANA OF MORE IMPORTANCE TO THE ECONOMY OF OUR STATE THAN A HEALTHY LIVESTOCK INDUSTRY.

FINANCES

The Livestock Sanitary Board must be ready to meet any emergency at any time and this can only be accomplished if the Department is properly and adequately financed. A reserve is also essential to meet extraordinary emergencies such as arose during the sleeping sickness outbreak in horses in 1938, the foot-and-mouth disease outbreak in Canada (on our border in 1952), the rabies outbreak in Billings in 1951, and the nation-wide outbreak of vesicular exanthema in swine, which still continues to exist as a threat and which appeared in Montana on one occasion in 1953. We never know from one day to the next what devastating disease may occur in our state. During all of the war years when civil defense was a problem of major concern, this was a heavy burden but a responsibility which was willingly assumed by all our veterinarians. Because of the danger of sabotage, many thousands of animals were inspected and hundreds of investigations were made of various diseases and reports of disease conditions. During these strenuous times the help situation not only in the office, but in the field, was very difficult, but because of the loyalty and the willingness of our personnel to go anywhere any time in cases of suspected emergencies we have been successful in taking care of disease outbreaks and in making investigations of diseases which might have been devastating to our livestock industry had it been sabotaged.

Because we have operated economically and efficiently and with a foresight of some of the problems to come, we were able to accept the proposal made by the Bureau of Animal Industry (now the Agricultural Research Service) to match dollar-for-dollar in a state-wide brucellosis-control-and-eradication program. We are confident that when this program is completed that it will enhance the value of our cattle by millions of dollars. We also know that in the inauguration of any disease-control or sanitary program for the benefit of public health or

our livestock industry there will always arise a certain amount of opposition due to misinformation, ignorance or, in most cases, selfishness. Then when the work is completed those who were most opposed are very happy and pleased that the job was done.

Who would think of going back to the days when scabies in cattle was common in about half of the counties in Montana and when tuberculosis was found in a high percentage of raw milk dairy herds and many farm and range herds? Because of the increased national demand for the eradication of brucellosis it is only natural that Montana, a livestock exporting state, should do everything possible to eliminate this disease in its own cattle if it wishes to have an open market for these animals in states which are now spending millions of dollars to eliminate the disease from within their borders. We must always bear in mind that we are an exporting state and that we must prepare our products so that they will not only be acceptable but will be sought by buyers in other states.

Through past experience in dealing with foot-and-mouth disease and in preventing the importation of vesicular exanthema-infected swine destined to Montana during the outbreak in 1953, many thousands of dollars were saved. It was primarily through these savings that we were able to build up a reserve fund which has made it possible to enlarge our brucellosis program and the scope of our endeavor in other fields.

Because of the public demand that the brucellosis-eradication program be continued, it is necessary to ask for a decided increase in money for this purpose for the next biennium. We are confident we can complete the testing for much less than that expended in most other states if the work can be pursued as now planned.

LITIGATION

During the period from July 1, 1952 through June 30, 1954, the Livestock Sanitary Board obtained 7 convictions of individuals prosecuted for violation of the garbage-feeding law and regulations.

One individual was prosecuted for violation of a Livestock Sanitary Board quarantine. He pleaded guilty and was required to pay a fine, plus court costs.

One rancher and one trucker were convicted of violation of our importation regulations and were fined in a hearing before a justice of the peace.

MONTANA LIVESTOCK SANITARY BOARD AND COOPERATING AGENCIES

I wish to express my sincere appreciation for the consideration and many courtesies extended to me and to the Department by all individuals who have worked with us during this past biennium. The excellent cooperation and assistance of all of the various organizations and individuals who have worked with this department and with me have undoubtedly had a direct bearing on the favorable accomplishments of the organization.

It is only through generous cooperation that a department such as this can function successfully and accomplish its numerous tasks to best advantage.

MONTHLY LETTER

At the present time the monthly letter is being sent to all veterinarians in the State of Montana and to the members of the Livestock Sanitary Board. There have been some changes in the monthly letter of late in regard to the laboratory reports. These changes were designed to increase the amount of information that the individual veterinarian receives about his own area. It is the purpose of this letter to inform the veterinarians throughout this State of new disease conditions and to keep them on the alert for these diseases, and bring them up-to-date on new conditions. At the present time plans are underway to formulate a morbidity and mortality report for individual areas. It is also a very practical way of informing the veterinarians and individuals interested in the brucellosis-control program of the progress which is made in that program during each month. In this way, all veterinarians throughout the State will know which counties are modified-certified brucellosis-free areas and which counties are brucellosis-control areas. This is very important in regard to the shipment of cattle intrastate.

ANAPLASMOSIS

Anaplasmosis continues to be a threat to the cattle industry of Montana as it is a threat to the industry throughout the country. It has occurred on a few ranches in Montana to such an extent that investigations have been made and the disease positively diagnosed by the identification of marginal bodies in the red blood cells, or by the complement-fixation test, or both. Death losses this biennium on ranges where it has previously occurred have been about the same or less than during previous years. A few tests made by the Agricultural Research Service in Washington indicate that we may have a much higher incidence of carrier animals in some herds and areas than might be suspected by the number of clinical cases and deaths reported.

The Agricultural Research Service has not as yet been able to consistently produce an adequate amount of satisfactory antigen so that we can go ahead and test as many animals as we think we should test in order for us to know definitely the amount of infection present in Montana. However, we have recently been informed by the Animal Disease and Parasite Research Branch of the Agricultural Research Service that the complement-fixation test is now ready for experimental field trial in the control or eradication of anaplasmosis in herds or in areas following a well-thought-out plan.

Considerable attention has been given to the use of a vaccine prepared from **Anaplasma centrale** (an African strain of anaplasmosis), which has a low mortality rate but which produces a relatively high degree of protection against **Anaplasma marginale**, the infection encountered in this country. Whether the use of a vaccine at this time would be wise or whether it would be wiser to attempt to find a means

for the control and eradication of this disease is a question worthy of consideration by our cattle people and federal and state sanitary officials. We know it is a much sounder procedure to eradicate a disease, even though the cost may be high, than it is to live with it. This has been amply demonstrated in this country by the eradication of many of the diseases as noted in the "Foreword."

ANTHRAX

Anthrax made its appearance on two premises during the fiscal year 1953. Losses were negligible in each instance. The first outbreak occurred in August, in a herd of garbage-fed hogs near Billings—approximately 500 in the herd, of which 9 head died of anthrax. An early field diagnosis was made by a local veterinary practitioner, who immediately notified the Helena office and submitted proper specimens for laboratory examination and a confirming diagnosis was made.

Prophylactic sanitary measures were promptly inaugurated upon confirmation of the field diagnosis. These measures consisted of the complete incineration of all dead hogs, thorough cleaning of feeding platforms and subsequent scrubbing with a lye-and-lime solution, the complete removal of all suspected contaminated material and its treatment with lime-and-lye before being deeply buried. Following the execution of the sanitary measures and without vaccination, losses ceased and did not reappear on this or adjoining ranches. All hogs have since been slaughtered under federal inspection without any evidence of infection.

The second outbreak occurred on a ranch in western Montana, in a herd of 43 head of purebred cattle. One heifer died very suddenly and the owner, who insists on knowing why every animal dies, had this heifer carefully posted by the local practitioner, who observed lesions indicative of anthrax. Specimens were submitted for laboratory examination with the result that the field diagnosis of anthrax was confirmed. Again, immediate action was taken to completely burn the carcass and all suspected contaminated material. The probable source of this outbreak was imported feed in the form of soybean meal, bonemeal, or other imported feeds which were incorporated in a specially-prepared pellet. In order to determine whether or not this infection was picked up on the premise, or through the specially-prepared feed, no animals were vaccinated as it was desired to determine whether or not the pasture was sufficiently contaminated to warrant vaccination. Since the animals were seen at least twice daily it was thought that even though one should become infected it would be noticed in time for it to be treated and saved. Up to this time, almost a year later, not a single case of the disease has appeared.

If all anthrax outbreaks can be diagnosed early and proper precautionary measures taken, it will, in the end, save our livestock people many millions of dollars and possibly much human suffering. We believe that by minimizing gross contamination of premises in

Montana we are contributing greatly toward decreasing the incidence of this centuries-old devastating animal plague.

Anthrax was not diagnosed in Montana during the fiscal year from July 1, 1953 through June 30, 1954.

BACILLARY ICTEROHEMOGLOBINURIA (Red Water)

In the period from July 1, 1952, through June 30, 1954, 8,181 cattle were officially vaccinated against bacillary icterohemoglobinuria and 68 cases of the disease were diagnosed.

During these past two years this disease has appeared on many ranches on which it has not previously been observed. These ranches have been, however, in the region in which the disease has previously occurred and a region considered favorable for the propagation of the infection.

During this biennium there were 202 blood samples tested, by means of the agglutination test, of which 182 were negative, 7 positive and 13 suspicious.

It is hoped that through the continued combined efforts of the Montana Veterinary Research Laboratory and the Montana Livestock Sanitary Board, a satisfactory means will soon be found to detect carrier animals so that further spread of the disease may be prevented and a more satisfactory vaccine, effecting a more lasting immunity, can and will be produced.



Red water is a disease which will remain in an area over the years due to the fact that it is caused by a spore-forming organism.

Bacillary icterohemoglobinuria is a disease produced by a very resistant spore-forming organism which when once it invades a premise favorable for its perpetuation, it appears that such a ranch will be perpetually infected. It is just another disease with which the operator of the ranch will be obliged to live, as in the case with a ranch infected with blackleg. It is, therefore, of great importance that a more satisfactory vaccine be produced—one which will give a permanent immunity, and that a more satisfactory test be perfected so that known infected carrier animals can be detected and prevented from being moved from ranches or areas known to be favorable to the perpetuation of this disease.

BLACKLEG

There has been an unprecedented outbreak of blackleg in calves, particularly in western Montana, during 1953 and up to July 1, 1954. This occurred in vaccinated and unvaccinated cattle. Losses have been reported while on the high mountain ranges; however, deaths have occurred under all kinds of ranch and range conditions. Many losses have been reported on places where blackleg had not been known to exist and for this reason vaccination had not been practiced.

Blackleg usually affects calves three months of age or older but it is not uncommon to find it affecting a calf three weeks of age or even a cow up to seven years old nursing a calf. Most cattlemen in Montana are familiar with the symptoms commonly observed in blackleg.

The principal lesions observed on post-mortem examination are a blackening of certain muscles or groups of muscles. These muscles usually contain a considerable amount of gas. The affected muscles may be any muscle or group of muscles in the body, such as the cheek, neck, shoulder, loin, hindquarter or even the heart muscle. The assumption that blackleg is found only in the shoulder region is a fallacy, but it is one of the most common sites for gassy swelling and typical blackleg muscles. A reddish or pinkish gelatinous material will usually be found under the skin and between the muscles in various parts of the body, especially in the affected regions. When a laboratory examination is desired, the muscles of the carcass should be carefully examined and a section of a muscle showing a typical blackleg picture should be sent to the Bacteriological Laboratory in Helena for positive diagnosis. All cattle dying from blackleg should be completely burned to ash, in order to cut down premise contamination, or processed in a licensed rendering plant, or deeply buried after having first been covered with a sack of quicklime and several cans of lye.

All calves should be vaccinated shortly before they are turned out to range or pasture, so that most of them will be vaccinated at two or more months of age. On a few ranches it may be necessary for calves to be vaccinated before they are three weeks of age because of mass virulent infection being present. It may be necessary to vaccinate such calves at a very young age, then again at three or four months of age, and again about weaning time. As a general precaution, it is recommended that all calves be revaccinated in the fall of the year



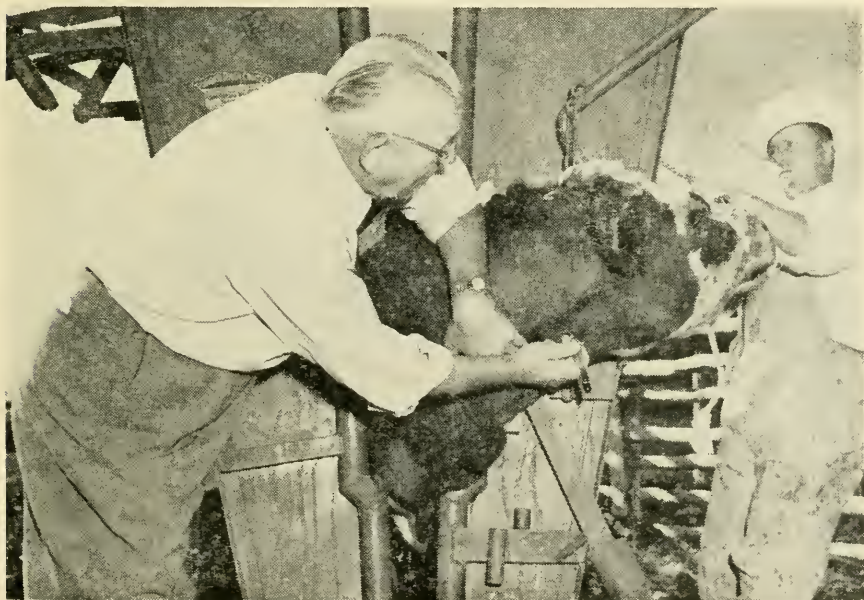
During the last biennium, unprecedented losses due to blackleg have been seen in vaccinated and unvaccinated animals alike.

(even though previously vaccinated) as there are consistently too many losses when this practice is not carried out.

It is believed that an improved and revised potency test for black-leg bacterins and some other biological products may be inaugurated, which will be of value in assuring a more uniformly satisfactory immunizing agent. The lack of, or improper, refrigeration of blackleg immunizing products is a common practice and a factor which, undoubtedly, diminishes the potency of these agents in proportion to the temperatures and the uniformity of temperatures of which they are kept. **All purchasers of blackleg products should assure themselves that these products have been properly refrigerated since manufacture, and should always be maintained at 35° to 45° temperature until administered to the animals to be vaccinated.**

BRUCELLOSIS

For the past two decades the Montana Livestock Sanitary Board and cooperating agencies have conducted an educational program within the state to keep the cattlemen informed on what was known about brucellosis (Bang's Disease) and the best methods of controlling and eliminating it from infected herds. This protracted endeavor has had a gratifying effect as a very high percentage of stockmen have followed the advice offered. As a direct result of the stockman's cooperation in having his calves vaccinated against the disease and



"Good corrals and chutes simplify the problem of testing cattle,"
say Dr. Vinsel and Dr. Shaffner who planned and executed
the program in Beaverhead County in half of the allotted time.

by shipping his dry cattle for slaughter the incidence of the disease has been lowered considerably. In fact many informed stockmen and veterinarians were of the opinion that the rate of infection was at a low ebb and that now was the time to deal a death blow to the disease and completely eradicate it from Montana.

Consequently members of this office obtained counsel and advice from the country's best informed brucellosis authorities and drew up a set of regulations that were not only in line with the national trend but primarily adapted to conditions in Montana.

The new regulations provided for the following:

1. Identification of infected animals.
2. Identification of vaccinated animals.
3. Quarantine of animals infected and exposed.
4. The movement of animals from infected herds.
5. The testing of all breeding cattle sold within the state.
6. The certification of disease-free herds.
7. The certification of brucellosis-free areas.

During this period, meetings were held with representatives from the United States Department of Agriculture, Agricultural Research Service, and arrangements made for conducting a joint cooperative brucellosis program. Agreements were signed whereby the federal government would supply personnel and material to help the Montana Livestock Sanitary Board eradicate the disease from the state.

Meetings were also held with various practicing veterinarians in the state to enlist their help in the field. A system was set up in which either the state or federal agency could employ local veterinarians to perform brucellosis work on a fee basis.

Conferences were then held with representatives of the Montana Extension Service and plans made for utilizing that agency's proven organizational abilities.

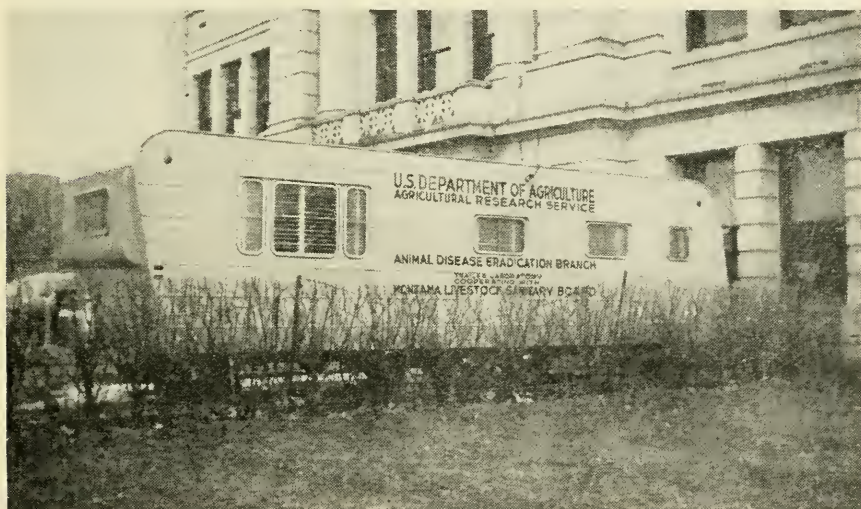
The Montana Livestock Sanitary Board in session on September 1, 1953 approved the new brucellosis regulations and the plan to certify the State of Montana as a brucellosis-free area within the next five or six years. The next step was to present the latest facts about the disease to the people, tell them of the new regulations, and what could be done about eradicating brucellosis. The program had to be geared to finances available which would permit the complete testing of approximately ten to twelve counties a year. It was known that the pan handle of Idaho was a certified brucellosis-free area; therefore, the counties west of the divide were given top priority. Extension agents in designated counties arranged for meetings of cattle owners. Stockmen in every county approached approved the program and organized committees to circulate petitions asking that their county be declared a disease-control area for the eradication of brucellosis. The response was overwhelming as evidenced by the petitions received in Helena from county after county signed by from 80 to 99% of the cattleowners. Since the 1943 Montana legislature passed a law whereby an area could be declared a disease-control area when 75% of the stockmen owning more than 50% of the cattle petitioned for

such, the Montana Livestock Sanitary Board was obliged to declare fourteen counties as brucellosis-control areas during fiscal year 1954.

In order to plan operations in an efficient manner, an attempt was made to have enough counties signed up ahead of time, so that testing could be carried on in a number sufficient to assure the completion of at least ten or twelve a year. Therefore, explanatory meetings were held in thirty-one counties, four of which were in the northeast, two in southcentral, and the balance in the western half of the state. Petitions were received in Helena from several counties in addition to the fourteen mentioned above, and they were slated to be declared brucellosis-control areas the first part of the fiscal year 1955.

When a county is declared a "Brucellosis-Control Area" all breeding cattle over one year of age are subjected to a blood test, except that calf vaccinated animals need not be tested until after they are three years old. Steers and spayed heifers are not tested. Heifers of the beef breeds between six and twelve months of age, and those of the dairy breeds between six and ten months of age may be vaccinated against the disease. Under our present program, strain #19 **Brucella abortus** vaccine is furnished free of charge for the vaccination of one calf crop. Thus the testing of cattle and vaccinating of calves is a free service to the stockmen in counties that have petitioned for the work.

A county becomes a "Certified Brucellosis-free Area" after all the breeding cattle have been tested and infection found in less than 1% of the cattle and less than 5% of the herds. Lake and Mineral Counties met these requirements during the year and became the first



The purchase of the traveling laboratory by the Agricultural Research Service has helped with the tremendous job involved in the testing of blood samples in the brucellosis program.

certified areas in Montana. The initial test was also completed with results as shown in the following:

County	Herds Tested	Cattle Tested	Infected Herds	Reactors Found	% Herd Infection	% Cattle Infection
Beaverhead	401	50,055	75	461	18.7%	0.92%
Carbon	1067	27,134	163	514	15.2%	1.89%
Cascade	1003	35,010	140	477	13.9%	1.36%
Missoula	579	10,072	64	159	11.0%	1.57%

The above counties will qualify for certification after the infection rates are lowered by retesting the infected herds. It is interesting to note in the figures cited for the four counties named above, that from 81.3 to 89% of the herds and from 98.11 to 99.08% of the cattle were free of the disease on the initial test. This certainly supports the opinion of those who felt that Montana was ready for the complete eradication of the disease.

Proof that Montana stockmen want to clean up their herds, counties, and ultimately the entire state can also be found in the summaries of work accomplished during the fiscal year 1954. More cattle were blood tested in Montana during the first year of this new program than were tested in any three preceding years. The records for the entire state show that 255,512 cattle were blood tested in 10,914 herds between July 1, 1953 and June 30, 1954. Only 4,970 were found to be infected with brucellosis or 1.9% of those tested. That means that 98.1% of the cattle tested during this period were free from the disease. Along with the above testing there were 205,795 calves officially vaccinated against brucellosis which is another substantial group of resistant animals to add to those given similar treatment in the past.

To facilitate efficient and accurate handling of blood samples new equipment was acquired and a new brucellosis laboratory set up in the Livestock Building, Helena, Montana. A new twenty-seven foot trailer laboratory was furnished by the United States Department of Agriculture, Agricultural Research Service, to operate in cooperation with the Helena laboratory. It has been used in western Montana quite successfully and will undoubtedly prove to be an invaluable addition to the program as a mobile unit. Provisions have also been made whereby an additional laboratory can be set up on a temporary basis most anywhere in the state whenever such a need arises.

The stockmen, the practicing veterinarians, and the Extension Service of Montana are to be complimented for a job well done during the fiscal year 1954, for without their help the Livestock Sanitary Board with the cooperation of the Agricultural Research Service could never have made such an outstanding start toward eradicating brucellosis from the State of Montana.

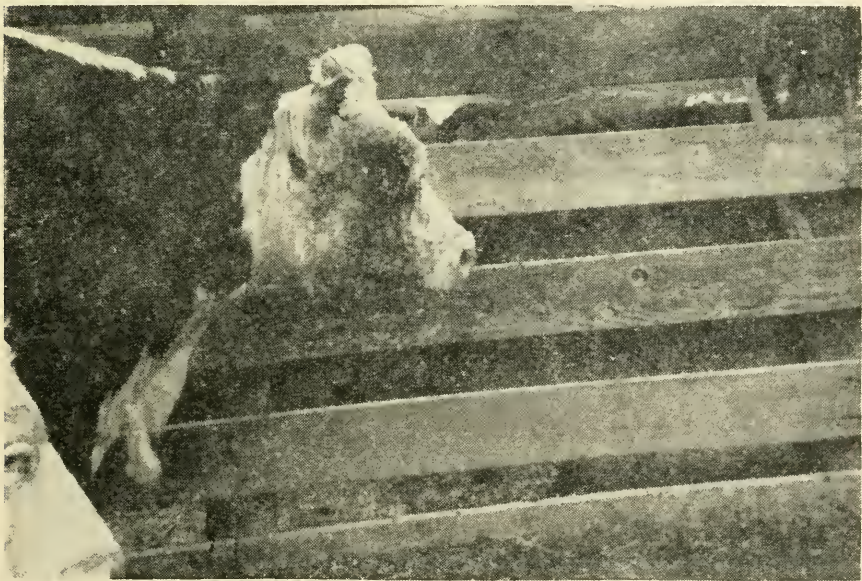
CANCER EYE (Epithelioma of the Eyes of Cattle)

Cancer eye is a common condition found in cattle, particularly in those areas where the Hereford breed predominates. The incidence of this disease is increasing alarmingly. There were 373 cases reported during the biennium by inspectors at public saleyards. We realize

this is only a very small percentage of the cases which actually occur because many owners of cancer eye cows have the lesion removed early so that a calf may be grown out. Thus, when the cow is offered for sale for slaughter the buyers will not discriminate against her as they would if she had a well-developed cancer eye. Other breeders have the lesion removed so that the cow may live longer and produce more calves which can be sold for a good price. Often the cow is one which consistently produces an outstanding calf.

It has been observed at the Miles City Range Experiment Station that 18% of the offspring from two bulls developed cancer eye before they were finally removed from the herd. This, together with reports and observations accumulated over a number of years, strongly indicates that cancer eye is probably a genetically transmissible disease and that every effort should be made, especially by purebred breeders, to assist in lessening the losses occasioned by it.

It is recommended that cancer eye be recognized early so that the affected animals may be sold for slaughter before the disease has advanced enough to warrant condemnation of the carcasses. Cattle with extensive foul-smelling cancer eyes, with swelling and degeneration of the eye socket should not be brought to saleyards but should be destroyed on the ranch or sent to a rendering plant. Since it has been demonstrated that a high percentage of the offspring from parents affected with cancer eye will develop cancer eye, it is recommended that such offspring be sold as calves for slaughter. Bull calves



**Cancer eye, now thought to be a genetic problem,
still takes its yearly toll.**

from known cancer eye cows should be castrated and should never be used for breeding purposes. It has been quite satisfactorily demonstrated in a number of herds that where the owners have followed the above recommendations the incidence of cancer eye in their herds has been greatly reduced or completely eliminated.

All purchasers of purebred Herford cattle should refuse to buy, as an addition to a breeding herd, any animal with cancer eye or any offspring from such parents.

FOOT-AND-MOUTH DISEASE

As of July 1st, foot-and-mouth disease is not known to exist on the North American Continent. No new cases have occurred in Mexico for several months and authorities are confident that the disease has again been eradicated from that country. The North American Continent, comprising Mexico, United States and Canada, is the largest area in the world now free from foot-and-mouth disease.

The Plum Island Animal Disease Laboratory, for which Congress has appropriated \$10 million for construction purposes is expected to be in full operation in about two years. Ground has been broken for the construction of this exceptionally fine laboratory on Plum Island off the tip of Long Island. While this is to be primarily a research center for the study of the various phases of foot-and-mouth disease, there will be sections devoted to the study and diagnosis of other vesicular diseases so that they can be differentiated from foot-and-mouth disease in the shortest time possible.

Foot-and-mouth disease will always be a serious threat to the livestock industry of this country and we must always be ready to speedily control it and eradicate it whenever and wherever it may appear. Up to this time vaccination has not been a satisfactory method for the eradication of this disease. The slaughter method as successfully used in this country is the only one which should even be considered until a better method is found.

JOHNE'S DISEASE

Johne's disease is a chronic infectious disease of cattle, sheep and goats, characterized by a chronic diarrhea and gradual emaciation. This disease is caused by an acid-fast bacterium similar to the one causing tuberculosis.

This condition has a very long incubation period, varying from two to five years in cattle. The organism is more resistant than the tuberculosis organism and will remain in the soil for approximately 285 days before it loses its virulence. The disease is spread from one animal to another by means of fecal contamination of the feed and water and is usually picked up as a young calf or young animal.

Symptoms usually appear in the summer and are quite often seen one to six months after calving. The disease has a very slow insidious spread with approximately 3% of the animals in a herd infected. The incidence is often increased if the animals are on a pasture of acid soil.

Then the incidence is quite often 15% of the herd. The lesions of this disease are limited to the intestinal tract. In cattle the ileocecal area is by far the most predominant site. In our experience in sheep we find that the rectal area is the most predominant site for the lesions. The mucosa of these areas will be noted to be thick and folded. The Peyer's patches and lymph follicles of the intestinal tract will stand out. The mucosa is pink in color and there will be some small grey flecks of mucus over the surface. The lymphatics of the wall of the intestine will be distended and can be seen grossly. The symptoms of this condition are primarily those of a chronic profuse diarrhea, with a very gradual emaciation. In dairy cattle, a secondary symptom seen is a drop in milk production and quite often a swelling under the jaw may develop. The animals become progressively weaker and death follows prostration.

The course of the disease is usually from one to two months, but this may extend to one year. Sheep show very few symptoms other than gradual emaciation until the very last stages of the disease when the diarrhea appears.

Treatment of infected animals has not been satisfactory and elimination of the disease from herds is a tedious and exacting procedure, usually requiring a year or more. This is done by successive intradermal tests similar to those carried out for the eradication of tuberculosis. Animals found to be positive to this test should be removed from the herd or band and slaughtered. All animals, particularly those in purebred herds and bands, showing a persistent diarrhea extending over a period of weeks should be carefully examined by a veterinarian. If Johne's disease is diagnosed a program for its control and eradication from the herd or band should be inaugurated immediately.

At the present time, Johne's disease is quite prevalent in some states and has been diagnosed in both cattle and sheep on a number of ranches in Montana. If this disease is allowed to become widespread among the cattle and sheep in the State it will be a very costly one to eradicate. All veterinarians are required to report suspected cases of this disease so that tests may be conducted for the detection of reactor animals.

LEPTOSPIROSIS

Leptospirosis is an infectious disease affecting cattle, swine, dogs and possibly other animals. It is also transmissible to the human family. This disease, in cattle, has been recognized in the eastern states since 1943, and was diagnosed by Dr. Hadleigh Marsh in a herd of range cattle in Big Horn County as early as 1944. It has in recent years become widely recognized in most states and has been reported as being particularly damaging to dairy cattle in the states on the west coast and to some of the beef cattle herds in the range states, including Montana.

Since starting testing for leptospirosis in the Helena laboratory approximately 80 herds, containing 2,816 head were tested which showed 293 head positive, 201 suspicious and 2,322 negative. This included one large herd of 1,219 head, of which 140 were positive and

110 suspicious. Many of the blood samples tested were taken at random from samples sent in for test for brucellosis to determine the incidence of reaction in herds not suspected of having leptospirosis. The percentage of reactor herds disclosed by such tests was very low. Some of the badly infected herds, which were thought to be infected

with brucellosis because of abortions or weak calves, were located when negative tests were made for brucellosis. Since leptospirosis was then suspected, tests were made which confirmed the suspicion. The source of infection to these herds has not been definitely determined but may have primarily been due to the introduction of disease-carrier animals.

Leptospirosis in cattle was thought to be, to a large extent, transmissible to cattle through the medium of infected swine. This assumption may be true in the central states, where there is considerable infection in swine and where swine and cattle run together or are fed together, but such an assumption, evidently is not true in Montana, as this disease appears in range cattle and on ranches where there are no swine. Swine, which usually do not show marked clinical evidence of leptospirosis, may carry and eliminate the infection for many months, during which time they may expose cattle with which they associate. Unless prompt action is taken on a nation-wide basis to better control this disease we may expect it to become a serious problem to the livestock industry and to human health. Some auth-



Leptospirosis is one of the disease problems now facing the livestock-men of Montana and will have to be reckoned with in the future.

orities believe it may assume a human health problem equal to that of brucellosis.

The principal symptoms by which this disease may be recognized are briefly summed up as follows: Usually associated with an elevation of temperature, a drop in milk production which may be marked in some cases; flaccid udders (atypical mastitis) with an abnormal secretion varying from blood-tinged to colostrum-like milk, bloody urine occurs in a few sick animals; anemia may be detected by a paleness of the mucous membrane of the mouth; icterus is quite often seen in the terminal stages of the disease; abortions often occur one to three weeks after the initial appearance of symptoms of illness and in a few cases it has been observed that calves are born weak after a normal delivery and die within 12 to 24 hours; in other herds there will be abortion storms similar to brucellosis abortion storms, and in such instances it is not unusual for a number of the aborting cows to die with acute leptospirosis. Leptospirosis should be suspected after ruling out brucellosis.

Treatment appears to be fairly successful if it is started early, and consists of the administration of large doses of streptomycin. Whole-blood transfusions from recovered animals accompanied by the use of antibiotics is probably the most successful method of treatment.

Recommended control measures should consist of the quarantining of all infected and exposed herds until such time as all reactors have been removed or recovered and no new cases have developed for at least six months. In addition, it is recommended that all animals in infected herds, including all calves, be promptly vaccinated and that all additions to such herds be vaccinated at least three weeks prior to moving. Reports on the use of vaccines today are not uniform. However, it appears that the immunity will be good for four months and will provide protection during the time when the greatest danger of loss due to the infection will occur.

MUCOSAL DISEASE OF CATTLE

During the past two years it has been noted that a disease commonly called "mucosal disease" has been diagnosed in the United States. This disease has also been diagnosed in the State of Montana. Very little is known as to the cause, control or treatment of this disease. It seems to affect both dairy and beef cattle and up to the present time has been primarily noted in the middle west. It is generally seen in cattle between 6 and 14 months of age. However, younger and older animals can have the disease. The seasonal incidence was greatest in the winter and early spring. The morbidity rate has varied from 5% to 20% in different herds of cattle and the mortality rate has been quite high.

An initial elevation of temperature to about 106° lasts 24 to 48 hours and then drops rapidly to normal. The general symptoms are those of a complete loss of appetite and a constant or intermittent watery diarrhea, sometimes mixed with blood; profuse salivation;

emaciation, dehydration and depression. Other symptoms vary with the location of the lesions. The course of the disease is from three to ten days. The lesions will vary considerably but are generally confined to the mucosa of the alimentary canal and are of an erosive or ulcerative type, varying in size and shape. Quite often the nostrils, muzzle, lips, gums, tongue and oral cavity will reveal erosion and ulcers, and a foul-smelling mucopurulent exudate will be observed hanging from the nostrils or muzzle.

Post-mortem examination will show typical ulceration and thickened edematous areas of the alimentary canal, generally beginning with an acute catarrhal enteritis progressing to severe focal lesions usually near the Peyer's patches. A thick tenacious mucus material will be noted in these focal areas. As the disease progresses, the mucosa becomes necrotic and sloughs away leaving a long narrow ulcer, which is followed by hemorrhage. A rather consistent lesion is a focal chronic cystic colitis often seen 10 to 20 centimeters distal to the ileocecal area. These cysts were from one to four millimeters in diameter and could easily be teased out of the mucosa. A severe inflammation varying from a catarrhal inflammation to a fibrino necrotic inflammation will be seen. It is significant to note that the lymph nodes are very slightly involved. Subepicardial and/or sub-endocardial hemorrhages always were observed. Some animals showed an opacity of the cornea and a catarrhal to mucopurulent rhinitis. Cloudy swelling was observed in the liver and kidneys but no disturbance of the spleen was noticed. The causative agent of this disease has not been found and experimental transmission has had no success. The control measures which will be instituted to control this disease in the future have not yet been formulated due to the lack of information on the disease complex.

SARCOPTIC SCABIES IN CATTLE

On February 2, 1953, skin scrapings taken from a bull showing an irritated skin condition indicative of sarcoptic mange were received in the Helena laboratory. Laboratory examination disclosed the presence of sarcoptic mange mites. Immediate action was taken to discover the source of the infestation and to also arrange for the dipping of the known disease and exposed animals in Montana.

It was disclosed that this outbreak of mange was brought into Montana from Utah by the importation of 40 bulls. These bulls had been in Montana only a very few months before the disease was discovered and at a time when they were not turned out with the herd, with the result that it did not become widely disseminated. Our findings were reported to sanitary officials in Utah who, in turn, carried out an intensive inspection campaign and found that the herd from which these bulls originated was badly infested with mange, which necessitated the dipping of over 10,000 head of cattle.

The diseased and all exposed cattle in Montana were immediately quarantined. The 40 infested and exposed bulls were dipped shortly after the discovery of the disease and were dipped twice after that in benzene hexachloride. Because of the remote danger that the disease

might have escaped into the larger range herd on the place in question, and because of heavy louse infestation in this herd, it was decided to dip the remainder of the herd—numbering approximately 1,750 head. By the end of the first week in March, approximately one month following the diagnosis of scabies, all infested and exposed cattle had been dipped and the quarantine released. Subsequent inspections have failed to disclose any evidence of sarcoptic mange in these dipped cattle.

The early discovery of this disease and its prompt eradication have saved our livestock men many thousands of dollars and the inconvenience and, at times, hardships occasioned by the necessity of dipping. Instances such as this clearly demonstrate the value of good sanitary veterinary service to our livestock people.

During the period from July 1, 1952, through June 30, 1954, 18,486 cattle were inspected for scabies, principally due to the inability of a veterinarian in another state to recognize scabies in cattle which were being shipped to other states. Since many cattle were shipped into Montana from a state in which scabies was diagnosed and shipped to many other states, it was necessary that we inspect these 18,486 cattle on 38 ranches to determine whether or not any of the cattle in question showed any evidence of scabies. This carelessness on the part of an inspector caused our department to spend considerable money and time which should not have been necessary had ordinary diligence been followed in inspecting the cattle. This blunder necessitated the calling of all state and federal sanitary officials west of the Mississippi River to Salt Lake City in March to work out a program for the complete inspection of all diseased and exposed cattle from known infected herds or regions in which the disease may have been introduced.

This meeting appeared to be worthwhile in that it was finally decided that the Agricultural Research Service would report to the state officials all reports of scabies in cattle and sheep and that all state officials, west of the Mississippi River, would report immediately any outbreak of scabies which might come to their attention, setting forth the species of animal involved, the location of the infestation, the number of animals infested or exposed and the progress being made in control and eradication of the outbreak. With this information, promptly made to all states concerned, it was felt that there would be little need in the future for the various states to quarantine against a state in which scabies is diagnosed. It was felt that this meeting spearheaded a national move to completely eradicate scabies from cattle and sheep from the United States. It was also brought out that by proper coordination of state and federal efforts that scabies can be completely eradicated from this country and that it will always remain a menace to the livestock industry as long as it exists in any state in the Union.

Livestock people and veterinarians are urgently requested to report any suspected cases of scabies to the state veterinarian or to the inspector in charge of the Agricultural Research Service so that a positive diagnosis may be made and the disease eradicated with a

minimum of expense to the individual having the disease in his herd or flock and so that it will not act as a stigma to the livestock industry in Montana.

TUBERCULOSIS

Tuberculosis is a disease which has been reduced approximately 99% since 1916 as determined by federal slaughterhouse inspection reports. This is an almost unbelievable reduction in a disease in a country as large as the United States and with a disease which was so widely disseminated throughout all states.

It will be many years before tuberculosis is completely eradicated from this country but it is a disease which can be completely eradicated and we are sure, in time, will be. There has not been a single case of bovine tuberculosis disclosed by the intradermal tuberculin test, by reports from state and federal packing houses operating in Montana, or reported to us from plants outside the State where lesion cases have been found and the animal traced back to a source in Montana.

It has now been approximately five years since a case of bovine tuberculosis has been found in Montana cattle. However, we realize that during the area testing an infected animal may have been missed or animals imported which may later be determined to be infected. When tuberculosis has been reduced to its present low level in a state like Montana, we are confident that the most satisfactory way of de-



Tuberculosis is seldom seen in range animals in Montana. Proper branding of animals facilitates tracing the disease back to infected herds when the disease appears

tecting the herd which may be infected will be, principally through the medium of meat inspection.

We have had a number of lesions sent in from packing houses. These were quite indicative of tuberculosis but laboratory tests and animal inoculation have failed to reveal the presence of the infection. There are a number of conditions which produce lesions indicative of tuberculosis but which can only be differentiated by laboratory examination. For this reason all suspected lesions are required to be sent in to the laboratory at Helena for examination.

BLUETONGUE

Bluetongue, many times referred to as catarrhal fever, is a non-contagious but infectious disease of sheep caused by a filtrable virus. This virus is very resistant. It will remain viable in decomposed blood for two years and can be transmitted only by blood inoculation artificially or via the transmitting insect the **Culicoides** (gnat). There are three different species of this genus which are capable of transmitting the disease from one sheep to another.

The disease first appeared in this country in Texas in 1948 and at that time was thought to be soremouth and later identified as bluetongue. Since that time the disease has been reported in California, Colorado, Utah, New Mexico and Arizona and has caused serious economic loss to the owners of sheep involved in those areas as well as great expense to the state regulatory departments.

Sheep having this condition will show a loss of appetite. Membranes of the mouth will be red and often turn a bluish color. Eroded or ulcerative areas will be noted on the dental pads, gums and the tongue. These erosions or ulcerations may appear on the margins of the lips or be seen in the corner of the mouth. There may be an inflammation of the nasal mucosa and a discharge, which in later stages will be crusty and cause inflammation of the muzzle. Some of the sheep will show lameness. These sheep showing lameness will often show a pink to reddish line at the coronet which will extend into the horny wall. Severe emaciation and wasting is one of the most prominent and constant findings. This condition has a long convalescent period. The inflammatory changes described in the mouth may be seen in the rumen and even in the intestine at times. Hemorrhages may appear in the musculature. Anemia may be noted in later stages of the disease. The average morbidity seen in this disease is about 10% with a mortality of the animals affected ranging from 1 to 10%. However, the mortality rate may range as high as 30%.

It is known that the disease is not spread by direct contact and that the only known method of natural transmission is by insect vectors. It is not unreasonable to suspect that mosquitoes could possibly act as mechanical carriers also. It has also been reported that both cattle and goats can act as a reservoir for this virus. However, these animals do not show symptoms of the disease. Eleven known strains of the virus have been isolated. Only two of these strains have been identified in this country. There is only one known way to make a definite

diagnosis of this condition and that is by the inoculation of blood or spleen material into susceptible animals. This disease could be confused with foot-and-mouth disease and has been confused with contagious ecthyma.

Due to the fact that this disease is spread by an insect vector, the control by quarantine or restriction is rather hopeless and would be only an added burden to the owner of the livestock. Vector control may aid in some manner but since we know so little about the **Culicoides** (gnat) and what other insects may possibly carry this virus, it is somewhat impractical at the time or at least we do not know how effective it might be. The only practical method of control that we have at the present time is vaccination. The present vaccines used in this country are made up of two strains which have been isolated in this country. Workers in South Africa have found that a mixed vaccine made up of four strains will protect against 10 of the different strains of the virus. However, the eleventh strain which was recently isolated may still cause trouble. Vaccines have been produced in Africa for prevention of this disease for many years; however, their effectiveness has been erratic and sometimes unexplainable. We have avoided using the vaccine produced in South Africa due to the fact that we may introduce strains of the virus which are not already present in this country.



Blue tongue, a disease of sheep, is a problem of great importance in other states and may present itself in Montana at any time.

About 12 million sheep are vaccinated annually in South Africa for this condition. This procedure is, of course, very expensive to the sheep industry in that area. There are no known cases of bluetongue in the State of Montana at this time. However, should this disease appear here it would be necessary for us to vaccinate. This would be a very expensive procedure for the sheep industry of the State and would be an added burden throughout the years since once this disease is endemic in an area vaccination must be carried out yearly.

SCRAPIE

Scrapie, a disease affecting sheep and goats, was first diagnosed in this country in the State of Michigan in 1947. Since that time the diagnosis has been made and confirmed in the states of California, Ohio, Illinois, New York and Connecticut. It is a chronic infectious neurosis most commonly observed in Suffolks, caused by a filtrable virus. The disease is characterized by an unusually long period of incubation, lasting from 18 months to 3 years. The course of this disease is insidious and may last from six weeks to six months or longer. The general symptoms include nervousness, increased excitability, with tremors extending over the head and neck. The head is often carried high and somewhat stiffly. The appetite usually remains normal. There is a noticeable loss of lustre to the fleece. The most prominent symptoms are those of severe itching, particularly over the tail head, the back and the sides. This may extend all the way up over the top of the head and on the face. A rapid licking motion of the tongue and lips will also be noticed in many instances when the sheep is rubbing or scratching. During the course of the disease, it will be noted that the animals are very unsteady and will often fall or be uncoordinated if forced to jump over small objects. This disease often affects ewes during gestation. Abortion may occur or the lambs may be born weak and die. Post-mortem examination will reveal no gross pathological lesions. However, the animals will show a marked emaciation. Generally speaking, 4 to 20% of a flock may be affected, but may at times increase up to 50%. The disease generally, if not always, has a fatal termination. It is most commonly seen in animals from two to three years of age and is seldom observed in sheep under 18 months of age, due to the long incubation period.

The diagnosis of this disease is based on the symptoms of severe itching, loss of wool, lack of gross lesions on post-mortem examination, the history of the disease, the spread and the animals affected. Demonstration of vacuoles in the neurons of the medulla and spinal cord is a confirmative diagnosis which can be carried out in the laboratory. The condition must be differentiated from listerellosis, louping ill, scabies, Aujeszky's disease, rabies and pregnancy toxemia. At the present time there is no known treatment for this condition and there is no information available on the use or production of vaccine as a preventative measure. This disease may be transmitted by contact, through infected pastures and by intro-uterine infection. It may also be transmitted experimentally by inoculation.

The latest outbreaks of this condition in the United States have been traced back to a band of sheep in Canada where the disease is



Scrapie, a deadly disease of sheep, has recently been introduced into the United States. We must be vigilant to prevent its introduction into Montana.

suspected to have originated. Some of the sheep from this diseased band in Canada have been shipped into the State of Montana and are here at the present time. There are no known clinical cases in this state now. However, these bands where the possibly exposed or infected sheep have been shipped are under quarantine and periodic inspection. Anyone suspecting scrapie in sheep should notify the state veterinarian or inspector in charge, Agricultural Research Service, Helena, at once so that an inspection and positive diagnosis of the condition may be made.

The control and eradication of this disease is a matter of quarantine and slaughter of infected animals. All animals that have been exposed to scrapie are subject to quarantine. All animals showing symptoms of the disease shall be slaughtered and disposed of on the premises. No animals exposed to scrapie may be moved from the quarantine area except for immediate slaughter and, then, only if specifically approved by the Animal Disease Eradication Branch of the Agricultural Research Service. All facilities which have come in contact with infected sheep must be thoroughly cleaned and disinfected. Indemnities for infected animals which must be slaughtered shall be paid to the owner under a cooperative federal-state program.

The seriousness of this condition can not be overemphasized. If this disease were to spread to many bands of sheep in this State the cost to the state's regulatory department and to the livestock owners would be tremendous. It is for this reason that we must be extremely vigilant to prevent any such occurrence.

VESICULAR EXANTHEMA

Vesicular exanthema has been known to exist in California since 1932, where it has infected hundreds of swine herds and has obliged the State of California to spend approximately \$125,000 a year to diagnose this swine disease, which is indistinguishable from foot-and-mouth disease in swine. Because of this similarity to foot-and-mouth disease, all sanitary officials were very much concerned that it might in time escape from California and cause extensive losses to the swine industry in their states, and complicate the diagnosis of every suspected outbreak of foot-and-mouth disease. After it had smoldered in California for a number of years most sanitary officials became more or less complacent and assumed that vesicular exanthema was not a dangerous disease and that it would probably never appear in any other state. This assumption, of course, was wrong because when it finally did break loose from its mooring in California it appeared in Wyoming in June of 1952 and spread like wildfire from coast to coast, involving 22 states in two months' time. Since its diagnosis on June 16, 1952, it has been found in 41 states and the District of Columbia and involved hundreds of thousands of hogs on more than 1400 premises. As of July 1, 1954, the disease has been eradicated from all states with the exception of areas in parts of nine states in which the disease still persists. The disease is now well under control in most states and its ultimate eradication from all states can now be looked forward to with reasonable confidence. Unless its eradication is pursued vigorously all of the progress made in its eradication up to this time can easily be lost and we could soon revert to a status much worse than that prevailing at the time eradication measures were instituted.

Up to June 19, 1953, there were 480 outbreaks in garbage-feeding establishments as compared with only 27 in grain-feeding establishments. It is clearly evident from this information that garbage feeding is a most dangerous practice and a serious threat to the health of the livestock industry of this nation. It is not only the principal source for the dissemination of vesicular exanthema in swine but also a potent source for the spread of hog cholera, foot-and-mouth disease, and numerous other livestock, poultry and human diseases. It is gratifying to know that 42 of our states now have laws or regulations requiring the cooking of garbage, but we must bear in mind that laws and regulations are not all that are necessary in order to insure the proper cooking of garbage in all of these states.

Since February 1953, when the law requiring the cooking of garbage in Montana was passed, every effort has been made by our field personnel to see to it that all garbage feeders are licensed and properly cook their garbage. The Agricultural Research Service employed two lay technicians on July 1, 1953, whose duty it has been to check all garbage-feeding establishments every two weeks. This additional help and assistance have made it possible to practically assure us that all garbage fed to animals in the State of Montana is now being properly cooked. The cooperation we have received from the Agricultural Research Service in making available these inspectors is greatly

appreciated as it was very difficult for the Livestock Sanitary Board to assume the additional work required to police garbage cooking in Montana since the legislature made no appropriation to carry out the provisions of the law.

On June 29, 1952, at a time when vesicular exanthema was appearing in many market centers in the central states, it was learned that four cars of hogs had been purchased in Omaha for shipment to a Billings slaughterer and that these hogs might have been exposed to vesicular exanthema. The hogs were immediately traced and located at Lincoln, Nebraska, and the railroad company was advised that this shipment would be refused entry into Montana. The following day these hogs were inspected at Lincoln and found to be infected. Had this shipment been permitted to come into Montana and be slaughtered, without processing, which was permissible at the time, numerous outbreaks could have occurred in garbage-fed hogs. Such outbreaks would, undoubtedly, have been the cause of additional outbreaks and further spread of the disease within the State. It is conservatively believed that by stopping this one shipment the State of Montana was saved at least \$100,000.

During July of 1953 vesicular exanthema was diagnosed in a herd of 380 garbage-fed hogs near Billings. This herd was immediately put under quarantine and guarded until all hogs were disposed of according to federal and state regulations. This was the first and only time vesicular exanthema has been diagnosed in Montana, and fortunately it was eradicated from this one premise without having spread to any other hog herd. This one outbreak of vesicular exanthema cost the cooperative agencies over \$15,000 to eradicate. This figure readily demonstrates how expensive numerous outbreaks might be, how devastating they could be to the swine industry and how costly the disease would be if it were not controlled. A differential diagnosis must be made each time an outbreak occurs because vesicular exanthema is indistinguishable in swine from foot-and-mouth disease. Since we can not afford to make a wrong diagnosis of vesicular diseases, it is imperative that each outbreak of vesicular exanthema be positively diagnosed and **positively determined NOT to be foot-and-mouth disease.**

POULTRY

The latest statistical figure of cash income from the sale of chickens and eggs in Montana totals \$8,967,000 as compared to \$5,496,000 ten years ago. This figure is somewhat in line with the 5.6% increase in population during this period. The poultry industry is one to be encouraged as its products are wholesome and nourishing foods for the American public.

The diseases with which our poultry raisers are confronted are predominantly parasites, nutritional deficiencies, leukosis and respiratory conditions.

There were a few serious outbreaks of infectious bronchitis in eastern Montana flocks. This disease may gain considerable im-

portance as many of the chicks shipped into the eastern section of the State come from states where bronchitis is an important economic factor. In time it may be necessary to permit the use of bronchitis live virus vaccine as a prophylactic but we frown upon its use unless absolutely necessary.

Spirochetosis in chickens is becoming of great concern to us. Our first diagnosis of this condition was made November 25, 1952, in a flock of birds at Two Dot, Montana. Within the past two years we have made diagnoses of spirochetosis in 14 flocks. The spirochetes are found in scrapings from the respiratory tract and up to the present time we have been unable to demonstrate them in the blood stream. Because this disease is supposedly disseminated by ticks and mosquitoes, we contacted the Rocky Mountain Laboratory at Hamilton, Montana, and they have graciously consented to do further work on the problem. It may be that we are dealing with a new type of spirochetosis.

Within the past two years psittacosis has made its appearance in Montana. On April 27, 1954, an owner of a parakeet brought the bird to the laboratory for examination. It had been purchased from an aviary outside the State and had been ill intermittently for about six months. The owner agreed to have the bird destroyed and forwarded to the Rocky Mountain Laboratory at Hamilton, Montana, for examination. Their report stated the bird was heavily infected with the psittacosis virus.

It is imperative that all regulatory officials and departments be alert in recognizing this disease as birds of the parrot family have become popular as pets throughout the United States and it is evident that the disease is on the increase.

The testing for pullorum disease and other Salmonellas continues in cooperation with the Montana Poultry Improvement Board. Within the past two years 113,688 chickens were tested for pullorum disease and 359 reactors were found. In cooperation with the Secretary of the Poultry Improvement Board, it was decided to check all incubators and hatchers by exposing certain selective media plates for a period of approximately 15 minutes. The results were interesting in that the coliform organisms were prominent in some cases and the pullorum organism was demonstrated in the machines of one hatchery. We feel that this method of checking incubators and hatchers is of value and we shall continue this procedure.

We wish to take this opportunity to thank Mr. John Ferguson, Secretary of the Montana Poultry Improvement Board, and the board members for their splendid cooperation in aiding with the many problems.

A total of 1,729 poultry specimens were examined in the laboratory this past year and 2,035 the previous year, making a total of 3,764 poultry specimens for the biennium.

ARTIFICIAL INSEMINATION

The practice of artificial insemination, which was practically unknown in this state a few years ago, is now becoming a flourishing business in Montana as well as all other states. The use and development of this practice have grown tremendously in the last ten years. The stockmen and dairy men in the State of Montana are indeed fortunate that they had a far-sighted legislature which could foresee the dangers involved in this practice, if it were not subject to regulation and control. Disease could easily be spread through this medium, particularly to the dairy herds within the State of Montana, especially if there were no control of the importation of semen from outside the State.

During the past year a school was held at Montana State College, in Bozeman, where individuals who were interested in becoming artificial inseminators in this state could learn about the sanitary measures and precautions which must be taken by the individual inseminator as well as some of the diseases which are likely to be spread through this medium. Following the school an examination was given for all those individuals who were interested in becoming licensed artificial inseminators. As of the 30th of June, 1954, nine men have successfully passed the examination and have been licensed as artificial inseminators in the State of Montana. Sometime in the near future another program of instruction will be held and another examination given, if plans go as expected.



Artificial insemination is a growing business in the State of Montana and offers a wonderful chance for dairy herd improvement.

At the present time plans are underway to formulate all of the necessary regulations in regard to the enforcement of this Act. We have been gathering information from other states in regard to the regulation of artificial insemination in those states and we feel that we are indeed fortunate to have advanced as far as we have.

The individuals involved in the business of artificial insemination in this State have been more than cooperative in assisting this department in its efforts to formulate regulations for the control of disease by this medium and to license the individuals working for the organizations in this business.

GARBAGE FEEDING

The 33rd Session of the Montana Legislature passed a law providing for the treating of garbage fed to swine or other animals. This was a very important measure and a step forward in preventing the spread of many animal and human infectious and parasitic diseases. Since the signing of this law there have been 7 instances where the law was violated by feeding uncooked garbage to swine. In each instance a complaint was filed against the violator and in each instance the violator was found guilty and penalized in keeping with the law.

Because of the wide dissemination of vesicular exanthema there is little doubt that the passage and enforcement of this law has prevented a number of outbreaks of disease. This has resulted in a financial saving to the swine industry and to the regulatory departments—the Livestock Sanitary Board and the Agricultural Research Service.

Uncooked garbage has been the principal source of introduction of hog cholera into Montana for many years. This past year it was unquestionably introduced into one swine herd through the illegal feeding of uncooked garbage.

The proceedings of the Second National Conference on Trichinosis records a number of serious outbreaks of trichinosis in the human family, most of which are directly traceable to the eating of improperly cooked or raw pork from swine which had been fed raw garbage. The most serious of those reported in the United States was in a state penitentiary where pork was used from swine fed uncooked garbage. In this instance, 73 human cases of trichinosis developed. Circumstantial evidence indicated the pork was eaten raw or was insufficiently cooked. Many smaller outbreaks have been reported from several states, practically all of which were traceable to the eating of uncooked or partially cooked sausage or pork-meat products. It is believed that the proper cooking of all garbage fed to swine and other animals, including poultry, will contribute much toward the prevention of transmissible animal and poultry diseases as well as those parasitic infestations transmissible to man, of which trichinosis is by far the most important.

Mr. R. C. Pollock, General Manager and Director of Research of

the National Live Stock and Meat Board, Chicago, Illinois, has made the following recommendations to assist in lessening the incidence of trichinosis:

"We should continue vigorously the compulsory program for the cooking of garbage fed to swine, since the feeding of raw garbage is the major source of trichina infection.

"We should continue the cooperative effort which has been in operation for many years — that of advising consumers of the importance of cooking pork thoroughly."

Montana had a serious epidemic of trichinosis in 1938 in which 31 people became seriously ill and a twelve-year-old boy died from eating insufficiently cooked pork which was heavily infested with **Trichina** larvae.

The Agricultural Research Service added two full-time livestock inspectors to their field force and these men semi-monthly inspect each garbage-feeding plant licensed in the State of Montana. This additional service provided by the Agricultural Research Service has made possible a much more thorough and regular check of all garbage-feeding plants than would have otherwise been possible. We are very grateful to our federal cooperators for providing this very much needed additional assistance.

As a major means of controlling animal and human diseases, everyone should do his part to discourage the feeding of uncooked garbage to animals.

MILK SANITATION

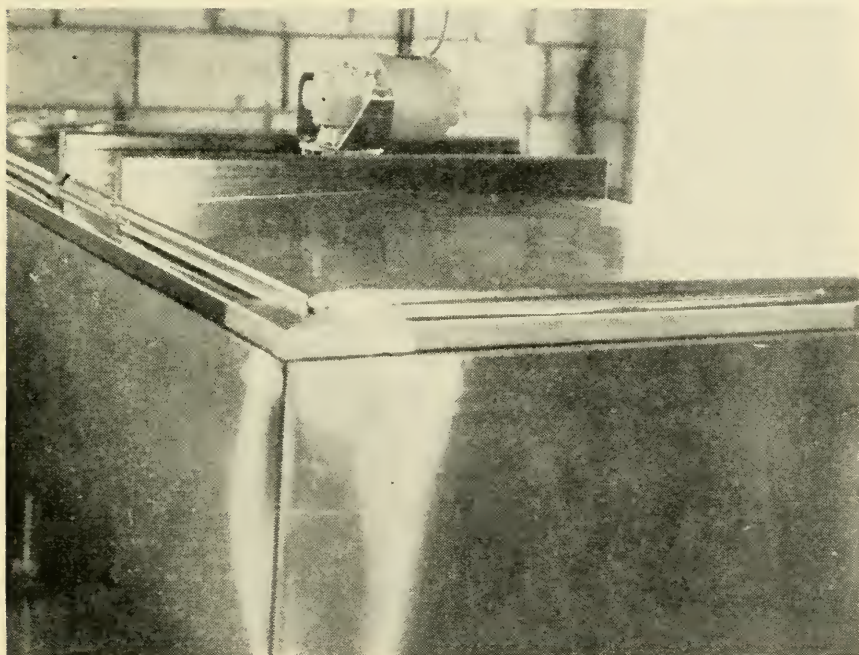
By J. D. C. WIPF, D.V.M.

THOMAS F. LOFTHOUSE, M.S.

We would like to stress the very important work which the personnel of the Livestock Sanitary Board, assisted by local health units, has accomplished since the Sanitary Board was authorized by law to supervise the production, processing and distribution of milk, cream and milk products in Montana.

Pasteurization of milk and dairy products was recommended as early as 1913, by Dr. W. J. Butler, State Veterinarian, and is now available to most of Montana. The tuberculin testing of Montana dairy cows and the difficulties encountered in this work would be material for a sizeable book in itself. Brucellosis control is following the same path, with success assured.

When it was decided in 1938-1939 to bring our milk regulations up to date, a seminar was held in Helena and instruction was furnished by the U. S. Public Health Service. All district veterinarians were in attendance and from information obtained at this seminar and from visits to health units and plants in the middle west, the 1939 U. S. Public Health Service Code was adopted with a few changes that were considered necessary due to the magnitude of our problem



New methods of handling milk are further assuring
a safe milk supply.

as it embraced the entire state. After the 1939 Code was adopted, we started inspection of all Montana milk plants and their producer dairies, together with the retail raw dairies. Conditions found were extremely varied and in the main did not comply with our Regulation 1. Most of the equipment and many of the plants were not in compliance, which necessitated a large financial outlay by the industry in order to comply.

In most instances these problems were taken care of as promptly as possible. We do have some current violations and no doubt will always have some, due to the change of plant operators, the problem of supply and demand, plus price problems. A very great improvement in the milk situation has occurred, for which credit should be given the industry, local health units and the Livestock Sanitary Board personnel. The benefits should be, and we are confident are, appreciated by the milk-consuming public.

Highlighting the accomplishments of the Livestock Sanitary Board in milk regulatory work during the past fiscal year was the approval of the 1953 Public Health Service Milk Ordinance and Code. This is in line with the policy adopted in 1939, when the Public Health Service Code was used as a basis for what was formerly called "Regulation 1." Our new milk regulations are now the most up-to-date that could be used by any state, county or municipality.



Stairway ramps leading to and from milking parlors make it easier to keep parlor floor clean. Cattle like steps, too. Courtesy R. E. Banderob, Worden, Montana.

An entirely new method of producing milk has entered the field of dairying during the past five years and its acceptance has been most pronounced during 1953. The milking machine, although still popular with the dairymen, is giving way to the pipe line milker, where milk is carried away from the cow under vacuum and discharged into cans or, in some cases, a bulk cooling tank—another modern innovation which is replacing the conventional can-type coolers. In-place cleaning of these pipe line milkers has proved to be an effective means for maintaining the utmost in sanitation, and the quality of the milk from properly cleaned and sanitized pipe lines has markedly improved. The producer realizes the benefits of this type of milker, in that it is a faster operation, eliminates cans as a source of possible contamination as well as much of the manual washing, and, when the pipe line is an integral part of the bulk tank

system of cooling, better refrigeration results.

Continuous pasteurizing by the high temperature short time (HTST) method is also becoming more popular especially with the large milk plants. This type of pasteurizer is checked, timing pumps set and sealed, to prevent milk from being under-pasteurized and causing a potential hazard to the milk-consuming public.

Effective January 1, 1954, the Livestock Sanitary Board discontinued the use of pasteurization permits which heretofore had been issued to dairymen who had brucellosis suspects and reactors in their herds. All milk must now come from brucellosis-free animals.

Realizing the need for more inspection and the necessity to certify the city, county and private laboratories in the State, as well as the technicians performing milk analyses, an additional sanitarian was employed on August 1, 1953. When the certification of laboratories is completed we will have a very uniform system of testing milk and cream, both bacteriologically and chemically. The Tenth Edition of Standard Methods for the Examination of Dairy Products is being used as a guide in this certification program.

A program such as ours could not possibly be as effective as it is today without the splendid cooperation of city and county sanitarians, and the district and deputy state veterinarians who have aided us in the dairy inspection work. The cities and counties have likewise given us excellent cooperation and some of them have adopted our milk regulations as local ordinances.

Our next step is to work toward the approval, by the Department of Health, Education and Welfare, of all of our state personnel in the field of dairy sanitation. With this approval, we will be able to perform milk shed surveys which are important in the control of interstate shipment of milk. The Public Health Service may also use the results of these surveys in approving milk to be sold on interstate carriers.

Those laboratories making milk and cream analyses, and the

approximate number of determinations made from July 1, 1953, through June 30, 1954, are as follows:

	Bacteria Counts	Coli- forms	Butter fats	Phospha- tase	Sedi- ments
St. Ann's Hospital, Anaconda	141	122	19	-----	-----
City Health Department, Billings	1,700	350	250	350	-----
Bacteriology Department, Montana State College, Bozeman	1,872	456	432	432	-----
St. James Hospital, Butte	1,707	789	893	997	50
Community Creamery, Missoula	650	-----	-----	-----	-----
Cascade County Health Department, Great Falls	168	168	168	168	168
Great Falls Air Base, Great Falls	346	436	314	302	-----
Medo-Land Dairy, Missoula		Not	Reported		
Miles City High School, Miles City		Not	Reported		
Missoula County Health Department, Missoula	1,236	168	168	-----	-----

A summary of the milk and cream analyses made in our laboratories is included in the report of the Bacteriologist and Pathologist.

During the period July 1, 1952, through June 30, 1953, there were 1,141 dairies licensed and 65 milk plants; during the fiscal year just completed there were 1,082 dairies licensed and 71 milk plants.

MEAT INSPECTION

Meat inspection is an essential public health measure which should be provided in every slaughtering center in the State. This is the type of work which should be paid for by the public as it is a health measure which does not directly accrue to the benefit of the slaughterer but is a valuable service for the meat-consuming public. The following cities and towns in Montana have passed ordinances requiring that all meat and meat products from domestic animals, for sale within such cities, be inspected and passed either by the Montana Livestock Sanitary Board inspectors or those of the Meat Inspection Branch of the Agricultural Research Service: Billings, Bozeman, Dillon, Great Falls, Havre, Helena, Lewistown, Livingston and Missoula. State meat inspection is provided on a county-wide basis in Flathead County. The Silver State Packing Company plant, at Chinook, has been approved for meat inspection. However, Chinook has not passed an ordinance requiring the inspection of all meat sold within that city. Butte and Anaconda have city ordinances providing for city meat inspection.

Meat inspection has been requested in a number of other cities but due to our inability to get qualified meat inspectors it has been necessary to defer action on these requests. However, it does appear that within the very near future inspectors may be available for this type of work. At the present time, meat inspection conducted under the supervision of the Montana Livestock Sanitary Board is at the expense of the respective establishments where meat inspection is maintained. The official establishment is charged for the service by the Livestock Sanitary Board and it, in turn, pays for the inspection rendered. This is the only manner in which the work can be carried on since no appropriation has been made for meat inspection other than for a meat inspection supervisor.

During the months of May and June we were able to secure the services of Dr. W. L. Ikard, a federal meat inspector, to inspect all plants where State meat inspection is maintained and to observe the inspection work being done by the inspectors at these plants. He also inspected most of the smaller slaughterhouses where meat inspection is not maintained. After completing his tour of inspection and furnishing us with a report on each plant inspected, we received the following letter setting forth his opinion of the overall problem as observed by him during his tour of inspection:

"I have completed a tour of inspection of slaughtering establishments that took me to all sections of the State. I saw most of the licensed slaughterhouses in Montana, and many of them while killing operations were in progress. A few of the smaller ones were missed because of lack of time.

"The livestock interests in Montana can well be proud

of the interest shown in slaughtering and the quality of these small plants. The majority of them are well built with good refrigeration systems, and have been planned so that a sanitary operation may be conducted. I would like to point out that while I made recommendations for improvement in equipment and operations in many of these plants I found it necessary in only two cases to recommend that action be taken to bring them up to the necessary sanitary standard.

"In most of the State inspected plants the inspection was being well conducted. There are several uninspected plants that are interested in and can qualify for inspection.

"It is my opinion that there is a need for processing inspection in Montana and I hope that it can be inaugurated in the near future."

It is evident from this report that satisfactory progress has been made in this field and that the inspections made by Dr. M. Myczkowski during the past year have contributed much toward the general improvement of slaughtering plants and the quality of the inspection in these plants. This special inspection and supervision was possible only because of an appropriation made at the last session of the legislature. Prior to that time no fund was provided for any supervision but limited supervision was provided by our district deputies.

Meat inspection can be of great value in locating many animal disease centers. This is particularly true of tuberculosis in cattle, mange, liver flukes, hog cholera, vesicular exanthema and many other diseases. Through meat inspection, the people of Montana are assured a wholesome supply of meat and meat products.

During the year July 1, 1952 through June 30, 1953, there were slaughtered under federal supervision 26,545 cattle and 1,818 calves; under State supervision 19,495 cattle, 2,838 calves, 40,368 swine and 3,542 sheep were slaughtered.

During the year July 1, 1953 through June 30, 1954 there were slaughtered under federal supervision 34,974 cattle, 2,215 calves, 154,271 hogs and 2,301 sheep; under State meat inspection there were 33,259 cattle, 5,847 calves, 37,820 swine and 5,862 sheep slaughtered.

There were 178 cattle, 171 swine, 30 calves and 24 sheep condemned in their entirety during the biennium, and 11 cattle, 1 calf, 16 swine were passed for sterilization. In 1953 there were 13,807 parts condemned and in 1954 there were 12,663 parts condemned, making a total of 26,470.

These figures show that out of every 370 animals slaughtered, one is found to be unfit for human food, and that a part of one animal out of every 5.6 animals is condemned for human consumption. However, the proper supervision of the sanitary condition of slaughtering establishments, equipment, and methods are of equally great importance.

For a breakdown of diseases found on meat inspection, we refer you to the following charts:

SUMMARY OF MEAT INSPECTION

July 1, 1952 - June 30, 1953

Establishment	Number Inspected			Number Condemned			No. Passed for Cooking	
No.	Cattle	Swine	Calves	Sheep	Cattle	Swine	Calves	Sheep
1	1095	2456	130	467	4	37	4	—
2	2457	12352	293	1578	—	—	—	—
3	1460	—	482	78	—	—	—	—
5	2982½	7120	280	716	23½	40	3	—
6	177	400	7	—	—	—	—	—
7	628	1287	116	9	5	12	1	—
8	302	265	12	57	—	—	—	—
11	313	1096	59	4	—	2	—	—
12	2033	5473	172	36	10	8	—	—
14	2157	3529½	365	190	27	9½	1	—
15	1305	351	283	101	2	2	—	—
16	674	1337	109	242	—	—	—	—
18	282	—	47	4	1	—	—	—
20	182	—	7	—	—	—	—	—
21	909	2901	9	11	3	5	—	—
22	428	1277½	37	6	—	—	—	—
24	463	—	80	—	—	—	—	—
Various	—	—	—	—	—	—	—	—
Gt. Falls	5	—	6	2	—	—	—	—
New Butte	706	516	97	25	1	1	—	—
Butchering	937	7	247	16	1	—	—	—
Biastoch	—	—	—	—	—	—	—	—
TOTALS	19495½	40368	2838	3542	77½	121	9	—
							5	1

SUMMARY OF MEAT INSPECTION

July 1, 1953 - June 30, 1954

Establishment Number	Number Inspected		Number Condemned		Number Passed for Cooking	
	Cattle	Swine	Cattle	Swine	Cattle	Swine
1	2046	2987	4	21	—	—
2	3775	10094	6	2	—	—
3	1921	698	1	16	—	—
5	3766	5928	37	7	1	—
6	1385	3151	198	2	—	—
7	2145	2071	5	4	3	4
8	1034	504	9	—	—	—
11	521	1672	—	—	—	—
12	3236	4690	1	3	—	2
14	2439	2089	13	2	—	—
15	2517	9	15	—	—	—
16	571	988	6	—	3	—
17	154	78	—	—	—	—
18	371	—	—	—	—	—
20	304	—	1	—	—	—
21	1486	1983	—	2	—	—
22	679	792	1	—	—	—
24	344	—	—	—	—	—
Various						
Great Falls	5	40	—	—	—	—
Butte Butchering	1829	722	1	—	—	—
Biastoch	2624	6	1	—	—	—
TOTALS:	33152	37764	101	50	6	7
					15	—

MEAT INSPECTION

All plants under State supervision, July 1, 1952 - June 30, 1953

SUMMARY OF POST MORTEM INSPECTION

Species	Cattle	Swine	Calves	Sheep
Food	19,495½	40,368	2,838	3,542
Cooking	5	9	1	
Condemned	77½	121	13	9
TOTAL	19,578	40,498	2,852	3,551

DISPOSITION OF CARCASSES AND PARTS

Diagnosis	Cattle		Parts		Swine		Parts		Calves		Pts	Shp		Pts
	Ckng	Cndmd	Ckng	Cndmd	Fd	Ckng	Cndmd	Ckng	Cndmd	Ckng	Cndmd	Cndmd	Cndmd	Cndmd
Tuberculosis		1		2			5		1586					
Actinomycosis		3½	1	260								3		
Pneumonia		3		1		6	26	3	16		3		3	
Septicemia		12		1			5				2		1	
Cysticercosis, bovis				1										
Cysticercosis ovis														9
Bruises, Injuries, etc.		1		136			3		137		1	3	1	7
Abscesses	1	12		204		1	11		489			8		6
Epithelioma		8		29			2		2					
Tetanus							1							
Hog Cholera							4							
Salmonella Infection		1												
Erysipelas						1	12		2					
Toxemia		1												
Pyemia		2					5							
Icterus							11		1					
Cachexia		14									1	1	1	
Urinary Calculi		3									1		1	
Uremia		1									2		1	
Gangrene of Lungs							2							
Contamination				6					1128					12
Pleuritis				5			2		5					1
Pleuro-peritonitis							1							
Pericarditis	1	2		8					64					
Endocarditis				1					2					
Peritonitis							1							
Enteritis							2							
Nephritis		2		2			1		8					
Hydronephrosis				1					179					
Pyelonephritis		1	1	1										
Omphalophlebitis										1				
Pyometra	1													
Metro-peritonitis		1		1										
Septic Mastitis		2												
Cellulitis	1													
Post-castration infec.							2							
Lymphadenitis														2
Polyarthritis				2			21		6					
Tongue Sores				4										2
Neoplasm		3												
Adenosarcoma				1										
Melanosis							1		1					
Cancer							1							
Warts, oral												1		
Spotted livers				1			2		8804			5		583
Tapeworms														43
Sarcosporidiosis									8					
Advanced pregnancy	1	1												
Ascites														1
Edema		1		2			1		14		2			
Anasarca		2												
Asphyxia							1							
TOTALS	5	77½	2	669	1	9	121	3	12452	1	12	21	9	665

BEEF LIVERS CONDEMNED:

Abscess	1,416	Distomiasis	48
Cirrhosis	21	Echinococcus	2
Telangiectasis	17	Parasites (flukes)	1,303
Sawdust	12	Contamination	1
Melanosis	12	Carotenosis	8

MEAT INSPECTION

Various Establishments — Year Ending June 30, 1954

SUMMARY OF POST MORTEM INSPECTION	Species	Cattle	Swine	Calves	Sheep
	Food	33,152	37,764	5,830	5,847
	Cooking	6	6		
	Condemned	101	50	17	15
TOTAL		33,259	37,820	5,847	5,862

DISPOSITION OF CARCASSES AND PARTS

Diagnosis	Cattle			Parts		Swine		Parts	Clv	Pts	Shp	Parts
	Fd	Ckng	Cndmd	Ckng	Cndmd	Ckng	Cndmd	Cndmd	Cndmd	Cndmd	Cndmd	Cndmd
Tuberculosis				2		2	5	158		1		
Actinomycosis		15		369						4		
Pneumonia	1	6		1		9			4		3	
Septicemia		7				4	1	1	1		1	
Cysticercosis				2								
Cysticercosis Refr.	1											
Bruises, Injuries, Etc.	1	6	169		2	172		1	8			6
Abscesses		6	5	358	1	5	530	2	20			8
Epithelioma	2	12		81								
Adhesions				26			10	2				1
Atrophic Rhinitis							4					
Brucellosis		2		1								
Cachexia		10						1		2		
Cancer, Generalized		1										
Caseous lymphadenitis											3	1
Colibacillosis						1						
Contamination		1		64			942		1			26
Dermatitis						1		2				
Edema of Lungs		1										
Enterotoxemia		1										
Erysipelas						1	4					
Gland Infection				4								
Hog Cholera						1						
Hydronephrosis							176					
Icterus		2				9	1				2	
Keratitis, infectious				2								
Livers, Misc. Lesions				24			7144		1		1212	
Lungworms												27
Mastitis	1	2										
Melanosis				1								
Metritis		2			1							
Nephritis		2										
Papillomatosis		1										
Paralysis											1	
Paresis		1										
Parotiditis				1								
Pericarditis		7		2			48					
Peritonitis					3							
Phlegmon		2										
Polyarthritis		2				6	4	1				1
Post-castration Infec.						1						
Pregnancy	1											
Pyemia						1						
Pyometritis		1		1	1							
Reticulitis, Traumatic		1										
Rumenitis, Traumatic		3										
Sarcosporidia		1					4					
Scabies							5					
Suffocation		1				1						
Taeniasis												28
Toxemia		1										
Tumors						1	2					
Unknown		1										
Uremia		1									3	
Urinary Calculi		2		1					5			
TOTALS	1	6101	5111	6	5010207	17	35	15	1310			

BEEF LIVERS CONDEMNED:

Abscess	2164	Atrophia	2	Melanosis	1
Cirrhosis	32	Distomiasis	2617	Carotenosis	11
Telangiectasis	38	Echinococcus	6	Tumors	4
Sawdust	10	Adhesions	5	Fatty Degeneration	1

PUBLIC SALEYARDS

Since approximately 50% of all cattle sold in Montana pass through public saleyards each year, it is essential that these yards be properly constructed and maintained so that they will not become a serious source of danger for the transmission of infectious diseases.

We are very proud of our saleyards and of the condition in which they are, generally, maintained. Because of an increased volume of business through these yards, some of which were thought to be adequately paved are now short and will be obliged to do additional paving in the near future and to make other essential improvements. We are very grateful to the yard operators and to their secretary for the excellent manner in which they have cooperated with this department in carrying out the provisions of our regulations. They have been particularly cooperative and helpful in following recommendations or regulations governing the health of livestock and equally helpful in offering suggestions and cooperating with us in animal disease control, particularly brucellosis.

As has been previously suggested to livestock owners, all trucks hauling livestock should be cleaned and disinfected each time they are used, but until such time as livestock operators make such a demand it is extremely difficult to enforce the requirement that truckers carry out this necessary sanitary practice. Few livestock men realize how much disease is transmitted by means of infected trucks. The cleaning and disinfection of stock cars, trucks and stockyards should be a national requirement, as it is in Canada, and should also be a standard requirement of each state.

RENDERING PLANTS

There are now 8 rendering plants licensed by the Livestock Sanitary Board. Since there has been such a marked decrease in the value of grease and hides, and other products produced by rendering plants, it is difficult for them to operate at a profit. This is unfortunate as these plants serve a very useful purpose. It is regretted that there are not more properly constructed and equipped rendering plants in the State so that all dead animals could be processed rather than permitted to decompose and further disseminate many destructive diseases and cause pollution of water supplies.

Respectfully submitted,
H. F. WILKINS, D.V.M.
State Veterinary Surgeon

REPORT OF BACTERIOLOGIST AND PATHOLOGIST

During the period July 1, 1952, through June 30, 1954, there were 265,514 specimens examined in the bacteriological and pathological laboratories. The material consisted of blood, smears, skin scrapings, exudates, vaccines, pus, feces, plants, parasites, tissues, milk, cream, water and various animals and birds for autopsies.

The species of animal and bird life represented were as follows: horses, cattle, sheep, swine, goats, dogs, cats, deer, mountain lion, buffalo, skunks, antelope, muskrat, beaver, chinchilla, opossum, chickens, turkeys, geese, parrots, guinea hens, swan, pheasants, ducks, canaries, parakeets and fish

	Species	Diagnoses from July 1, 1953 to June 30, 1954			Diagnoses from July 1, 1952 to June 30, 1953		
		Pos.	Neg.	Susp.	Pos.	Neg.	Susp.
Abscesses, <i>Corynebacterium</i>	Cattle	2			2		
Abscesses, mixed	Cattle	3			10		
Abscesses, mixed	Dogs				1		
Abscesses, mixed	Horses				1		
Abscesses, mixed	Rabbits				1		
Abscesses, mixed	Swine				1		
Abscesses, <i>Pseudomonas</i>	Cattle	1					
Abscesses, <i>Pseudomonas</i>	Rky. Mt. Gt.	1					
Abscesses, <i>Staphylococcus</i>	Dogs				5		
Abscesses, <i>Staphylococcus</i>	Horses				1		
Acetonemia	Rabbits				1		
Actinobacillosis	Cattle	7			8		
Acute indigestion	Dogs				1		
Air sac infection	Chickens	3					
Air sac infection	Turkeys	4			3		
Allergy	Cattle	1					
Anaplasmosis, blood smears	Cattle	9	12		13	13	
Anaplasmosis, *anti-complimentary	Cattle					21	
Anaplasmosis, *complement-fixation	Cattle	1	2		9	28	1
Anemia	Swine	1			1		
Anthrax	Cattle		11		1	15	
Anthrax	Swine				2	3	
Arthritis, <i>Staphylococcus</i>	Chickens	4			1		
Arthritis, <i>Staphylococcus</i>	Geese				1		
Arthritis, <i>Staphylococcus</i>	Turkeys	4			12		
Arthritis, <i>Streptococcus</i>	Cattle				2		
Aspergillosis	Chickens	1					
Aspergillosis	Turkeys	6					
Asphyxiation	Chickens	62			5		
Asthma (pulmonary emphysema)	Cattle				3		
Atresia, ani	Swine	1					
Atresia, urethral	Swine				1		
Bacillary icterohemoglobinuria agg. test	Cattle	5	52	4	2	130	9
Bacillary icterohemoglobinuria tissue cultures	Cattle	4	3		4	2	
Black disease	Cattle	3					
Blackhead	Chickens	1			10		
Blackhead	Turkeys	6			6		
Blackleg	Cattle	30	18		10	15	
Blackleg	Sheep					1	
Blindness	Chickens				8		
Bloat	Cattle	1			1		
Botulism	Chickens	3			1		
Bull nose	Swine				1		
Brucellosis, agglutination test	Cattle	4,080	158,815	4,051	1,946	69,641	2,090
Brucellosis, agglutination test (official vaccinates under 3 yr. of age)	Cattle						
				186			
Brucellosis, agglutination test	Buffalo					11	5
Brucellosis, agglutination test	Goats		56			48	
Brucellosis, agglutination test	Horses		1	1	4	1	
Brucellosis, agglutination test	Milk	77	302	3	62	347	
Brucellosis, agglutination test	Sheep		2				
Brucellosis, agglutination test	Swine		14	1		4	
Brucellosis, tissue cultures	Cattle	3	44		4	49	
Brucellosis, (guinea pig inoculation)	Milk		8				
Brucellosis, tissue cultures	Horses					1	
Cannibalism	Chickens				1		
Chick tremors	Chickens	9					
Cholera	Canary	1					
Cholera	Chickens				3		
Cholera, hog	Swine	3	1		11	1	
Cholera	Turkeys	13			4		
Coccidial granuloma	Cattle	1					
Colibacillosis	Cattle	3			20		
Colibacillosis	Chickens	14			26		
Colibacillosis	Parrots				1		
Colibacillosis	Rabbits				1		
Colibacillosis	Sheep				5		
Colibacillosis	Swine				3		

	Species	Diagnoses from July 1, 1953 to June 30, 1954			Diagnoses from July 1, 1952 to June 30, 1953		
		Pos.	Neg.	Susp.	Pos.	Neg.	Susp.
Colibacillus	Turkeys	2			2		
Corynebacterium infection	Cattle	7			4		
Corynebacterium infection	Chickens	2					
Corynebacterium infection	Goats				1		
Corynebacterium infection	Turkeys	1					
Coryza	Chickens	1					
Coryza	Parakeets	1					
Crop bound	Chickens				1		
Cystitis	Cattle				1		
Cystitis	Horses				1		
Cysts	Chickens				2		
Distemper	Dogs	1			1		
Egg bound	Chickens				1		
Encephalitis	Cattle	1					
Encephalitis	Deer	1					
Enteritis, acute	Cattle	1					
Enteritis, gastric	Swine				2		
Enteritis, hemorrhagic	Cattle				1		
Enteritis, hemorrhagic	Dogs	1					
Enteritis, mucoid	Dogs	1					
Enteritis, necrotic	Cattle				2		
Enteritis, necrotic	Swine				3		
Enteritis, streptococcic	Cattle	2					
Enteritis, streptococcic	Sheep	2					
Enterotoxemia	Cattle		3				
Enterotoxemia	Sheep		3				
Enterotoxemia, toxic (no neutraliza- tion)	Cattle	8					
Enterotoxemia, toxic (no neutraliza- tion)	Sheep	1					
Enterotoxemia, Type A	Cattle	2			13		
Enterotoxemia, Type A	Horses				1		
Enterotoxemia, Type A	Sheep				1		
Enterotoxemia, Type C	Cattle	15			4		
Enterotoxemia, Type D	Cattle				4		5
Enterotoxemia, Type D	Sheep	10			12		10
Enterotoxemia, not typed	Cattle				4		
Ergotism	Cattle						2
Erysipelas, agglutination test	Swine	10	2		5		2
Erysipelas, tissue culture	Deer				1		
Erysipelas, tissue culture	Goats				1		
Erysipelas, tissue culture	Sheep						1
Erysipelas, tissue culture	Swine	3	4		10		3
Favus	Chickens				1		
Fibrillar muscle rupture	Swine	3					
Fin rot	Fish	7					
Fitness for food	Various	16			17		
Flu	Swine				4		
Foreign body migration	Swine	1					
Fungus infection	Parrot				1		
Gout	Chickens				1		
Hepatic coccidiosis	Rabbits	3			6		
Hepatitis, infectious	Dogs	2			2		2
Hydrocephalus	Cattle				1		
Hydrocephalus	Dogs	4					
Hygroma	Cattle	1					
Identification of specimens:							
Bot fly larvae							
Bovine hair							
Spinose ear ticks							
Sun spider							
Impaction	Chincilla	2					
Improper handling	Chickens				9		
Infectious anemia, agglutination test	Horses	1	2				1
Infectious bronchitis	Chickens	6			10		
Infectious disease	Buffalo		1				
Infectious disease	Canary		3				
Infectious disease	Cattle		42				25
Infectious disease	Chickens		77				36
Infectious disease	Deer		1				
Infectious disease	Dogs						3
Infectious disease	Horses						1
Infectious disease	Parrots						1
Infectious disease	Rabbits		1				1
Infectious disease	Sheep		4				2
Infectious disease	Swine		2				1
Infectious disease	Turkeys		7				4
Johne's disease	Sheep	3	1				
Laryngitis, necrotic	Cattle				1		

	Species	Diagnoses from July 1, 1953 to June 30, 1954			Diagnoses from July 1, 1952 to June 30, 1953		
		Pos.	Neg.	Susp.	Pos.	Neg.	Susp.
Laryngotracheitis	Chickens	5					
Leptospirosis, agglutination test	Cattle	326	2,385	206	78	1,782	13
Leptospirosis, agglutination test	Swine		1				
Leptospirosis, tissue cultures	Cattle		1	1		4	
Leptospirosis, tissue cultures	Dogs	2					
Leukosis	Chickens	61			62		
Listeriosis	Cattle	1	3		1	5	
Listeriosis	Chinchilla				2		
Listeriosis	Rabbits				1		
Listeriosis	Sheep	4	1				
Livability determination	Baby Chks	66					
Lunger	Sheep				1		
Lymphadenitis, caseous	Sheep				2		
Malignant catarrhal fever	Cattle				1		
Malignant edema	Cattle	26	3		33	13	
Malignant edema	Horses	1			1		
Mastitis: acute, tissue culture	Cattle				1		
Metritis	Cattle				6		
Mixed infection	Cattle	3					
Mixed infection	Swine	1					
Mycotic granuloma	Cattle	1					
Mycotic stomatitis	Cattle	1			1		
Mycosis, Mucor	Cattle	1					
Navel ill	Cattle				1		
Navel ill	Sheep				2		
Navel ill	Swine	1					
Necrobacillosis	Cattle	3			4		
Necrobacillosis	Sheep				1		
Necrobacillosis	Swine	3					
Neoplasms	Cattle	4			8		
Neoplasms	Deer	1					
Neoplasms	Dogs	3			3		
Neoplasms	Horses	4			1		
Neoplasms	Sheep	1					
None made	Chickens				4		
None made	Rabbits				1		
None made	Swine				1		
None made	Turkeys				3		
Nutritional deficiencies	Chickens	25			17		
Nutritional deficiencies	Chinchillas	1					
Nutritional deficiencies	Turkeys	2					
Omphalitis	Chickens	3			10		
Paralysis	Rabbits	1					
Parasites (external):							
Sarcoptes	Cattle				1		
Sarcoptes	Dogs				1		
Sarcoptes	Swine	2			1		
Pediculus	Cattle	2					
Pediculus	Chickens				1		
Pediculus	Sheep				3	2	
Pediculus	Swine	1					
Sarcosporidia	Cattle	1			1	1	
Skin mites	Chickens	3					
Trichophyton	Cattle	6			5	2	
Trichophyton	Deer				1		
Trichophyton	Dogs				1		
Trichophyton	Horses				3		
Trichophyton	Swine				1		
Parasites (fecal examinations):	Cattle	9	1		15	2	
Parasites (fecal examinations):	Cats	1	2			3	
Parasites (fecal examinations):	Dogs	26	15		11	11	
Parasites (fecal examinations):	Horses	21	2		10	4	
Parasites (fecal examinations):	Monkeys					1	
Parasites (fecal examinations):	Sheep	6	2		11	1	
Parasites (fecal examinations):	Swine	3					
Parasites (internal):							
Ascarids	Cattle				1		
Ascarids	Chickens	5			10		
Ascarids	Swine				3	1	
Coccidia	Cattle	6			8		
Coccidia	Chickens	70			77		
Coccidia	Rabbits	1			2		
Dictyocaulus viviparus	Cattle	1					
Nematoda	Cattle				2		
Taeniidae	Cattle				3		
Taeniidae	Chickens	3			13		
Taeniidae	Ducks	1					
Taeniidae	Sheep				3		
Taeniidae	Swine				6		

	Species	Diagnoses from July 1, 1953 to June 30, 1954			Diagnoses from July 1, 1952 to June 30, 1953		
		Pos.	Neg.	Susp.	Pos.	Neg.	Susp.
Parasites (internal)							
Taeniidae pisiformis	Deer	1					
Taeniidae (cysts)	Rabbits	1					
Paratyphoid	Chickens	7			3		
Paratyphoid	Turkeys	4			28		
Pericarditis	Cattle	1					
Pericarditis	Swan				1		
Peritonitis	Cattle	1					
Peritonitis	Chickens	7			1		
Phlegmon, intramandibular	Cattle	3			6		
Photosensitization	Cattle				2		
Pneumoencephalitis, agglutination test	Chickens	4	52		16	62	
Pneumoencephalitis, agglutination test	Turkeys		5			3	
Pneumonia	Cattle				2		
Pneumonia	Dogs				1		
Pneumonia	Skunks				1		
Pneumonia	Sheep				1		
Pneumonia	Swine				3		
Pneumonia, gangrenous	Cattle	1					
Pneumonia, mixed	Cattle	4					
Pneumonia, mixed	Sheep	1					
Pneumonia, pasteurella	Cattle	13			28		
Pneumonia, pasteurella	Chinchillas	1					
Pneumonia, pasteurella	Goats				1		
Pneumonia, pasteurella	Sheep	5			2	1	
Pneumonia, pasteurella	Swine	2			3		
Pneumonia, streptococcic	Antelope	2					
Pneumonia, streptococcic	Cattle	1					
Pododermatitis	Cattle	1					
Poison, forage	Cattle	1					
Pox	Cattle				2		
Pregnancy disease	Rabbits				1		
Pregnancy disease	Sheep	3					
Pseudoleukemia	Cattle	2					
Pseudotuberculosis	Deer	6			6		
Psittacosis	Parakeets	1	2				
Pullet disease	Chickens	24			6		
Pullorum disease, agglutination test	Chickens	163	659		49	1,197	
Pullorum disease, agglutination test	Ducks	9	6				
Pullorum disease, agglutination test	Guinea hens	20	22				
Pullorum disease, agglutination test	Pheasants		2				
Pullorum disease, tissue cultures	Chickens	53	27		48	11	
Pullorum disease, tissue cultures	Pigeons		1				
Pullorum disease, tissue cultures	Turkeys		3				
Pullorum disease, incubator exposure of selective media plates		4	95				
Pulmonary emphysema	Cattle	3			3		
Pulmonary emphysema	Sheep				1		
Purulent metritis	Chinchilla	1					
Purpura hemorrhagica	Horses	1					
Pyelonephritis	Cattle	1			5		
Pyocyanous infection	Swine				2		
Rabies	Bobcats					1	
Rabies	Cats		5			5	
Rabies	Cattle					1	
Rabies	Dogs		29			12	
Rabies	Field mice					1	
Rabies	Mountain lion					1	
Rabies	Muskrat		1				
Rabies	Rat		1				
Respiratory diseases	Chickens				28		
Respiratory diseases	Pheasants				2		
Respiratory diseases	Turkeys				5		
Atrophic rhinitis	Swine				1		
Ruptured oviduct	Chickens	2					
Salmonellosis	Cattle	3					
Salmonellosis	Chinchillas				1		
Salmonellosis	Dogs				1		
Salmonellosis	Swine	5			9		
Scours	Cattle	2					
Sinusitis	Turkeys	2					
Sordellii infection	Cattle				2		
Spermatozoa, visibility examination	Cattle	17			9		
Spirchetosis	Chickens	16			4		
Staphylococcic infection	Chickens	2					
Streptococcic infection	Cattle	2			9		
Streptococcic infection	Horses				1		

	Species	Diagnoses from July 1, 1953 to June 30, 1954			Diagnoses from July 1, 1952 to June 30, 1953		
		Pos.	Neg.	Susp.	Pos.	Neg.	Susp.
Streptococcic infection	Rabbits				3		
Streptococcic infection	Sheep				1		
Streptococcic infection	Swine				2		
Teratoma	Chickens				1		
Tetanus	Cattle				1		
Tetanus	Sheep				3		
Toxemia	Cattle				1		
Toxemia	Chinchillas	1					
Trauma	Cattle	1			5		
Trauma	Cats	3			1		
Trauma	Chickens	15			24		
Trauma	Deer	1					
Trauma	Dogs	2			2		
Trauma	Geese	1					
Trauma	Opossum				2		
Trauma	Rabbits	3			6		
Trauma	Swine				1		
Trauma	Turkeys				2		
Trichomoniasis	Cattle		5		2	9	
Trichinosis	Swine					1	
Trichloroethylene processed soybean meal poisoning, differential counts	Cattle					17	
Tuberculosis, tissue examination, avian	Cattle	1	3		1	1	
Tuberculosis, tissue examination, avian	Chickens	19			24		
Tuberculosis, tissue examination, avian	Pheasants				1		
Tuberculosis, tissue examination, avian	Swine	1			1		
Tuberculosis, tissue examination, avian	Turkeys	1			1		
Tularemia, agglutination test	Dogs		2				2
Tularemia, tissue culture	Beaver		1				
Tularemia, tissue culture	Muskrat					1	
Typhoid, agglutination test	Chickens				102		
Typhoid, tissue culture	Chickens	18			31		
Unsatisfactory specimens (tissues, blood, milk and poultry)		146			58		
Urinary calculi	Cattle				2		
Viability of vaccines		12			15		
Vibriosis	Cattle	1					
Vibriosis	Sheep	2	18		1	2	
Water bloom poisoning	Water					2	
White muscle disease	Cattle	1			6	1	
"X" disease	Cattle	2					
Milk samples for bacterial count		1,777			1,515		
Milk coliform determination (plate)		142	489		330	748	
Milk, mastitis determination (smear)		430	545		482	636	
Milk (ABR test)			718	70		2,092	342
Milk, laboratory pasteurization		7			1		
Cream samples for bacterial count		216			329		
Cream coliform determination (plate)		46	175		59	184	
Cream (ABR test)			536	64		1,267	12
Water samples for bacterial count		16			9		
Water coliform determination (plate)		5	13		4	2	
Empty bottles for sterility		2			1		
Total diagnoses 7/1/53-6/30/54		8,488	165,325	4,587	6,056	78,524	2,472
Total diagnoses 7/1/52-6/30/53							265,514
Grand total 7/1/52-6/30/54:							

*Anti-complementary and complement-fixation tests for anaplasmosis were made by the U. S. Bureau of Animal Industry, Washington, D. C., and the Veterinary Research Laboratory, Bozeman, Montana.

The marked increase in the grand total of specimens examined during the past year can best be explained by the fact that a cooperative brucellosis-eradication area-testing program went into effect. Due to the great influx of blood samples, the brucellosis testing had to be removed from the main bacteriological and pathological laboratory and a stockroom in the basement was converted into a serological laboratory. A part of another basement room was converted into a packing and shipping room to accommodate the large volume of

samples. Two laboratory assistants were added to the staff to aid in the serological laboratory. The number of samples included in this report does not include the number of samples tested in the field by field personnel or by the traveling laboratory.

A decided increase may be noted in the number of milk samples analyzed which was due to the number of producer samples tested. Previously many of the producer samples were tested in the field by means of the methylene-blue reductase test but the condition of the milk produced has so improved that this test is no longer satisfactory. Consequently, there has been a considerable increase in the number of producer samples for bacteriological examination. A milk sanitarian has been employed as assistant to Dr. J. D. C. Wipf in the field. His services are also available to the laboratory and are much appreciated.

Several field veterinarians and stockmen have submitted samples for brucellosis, vitamin A deficiency or vibriosis determination. Although their losses consisted of abortions, they apparently could not be attributed to these diseases. As a result, some of these herds were tested for leptospirosis and found to react. A total of 2,917 samples were tested by means of the plate test and the capillary tube method; 326 samples were positive and 206 suspicious. This would indicate that in some areas there is approximately a 10% infection. Through the courtesy and splendid cooperation of Dr. Herbert G. Stoenner, Rocky Mountain Laboratory, Hamilton, Montana, we have been provided enough leptospirosis antigen to perform the above tests. We would like to further our work on leptospirosis testing but are limited because of laboratory facilities and the supply of antigen. Until the antigen is commercially manufactured our testing will have to be curtailed.

Another entity which has come into prominence is hemorrhagic enteritis in calves. Several cases were diagnosed during the past fiscal year. This disease, which has been attributed to Type C **Clostridium perfringens**, has been described by L. A. Greiner and his co-workers in the Journal of the American Veterinary Medical Association. The disease primarily affects calves and in the past year 15 cases have been diagnosed in our laboratory. This apparently new disease in young calves is somewhat similar to enterotoxemia in lambs and the usual picture is one of acute hemorrhagic enteritis. The calves are normal one day and found dead the next day. At the present time there is no effective treatment, but it is believed that one biological house is producing Type C perfringens bacterin and they are carrying on extensive experiments by vaccinating the adult cattle before calving time. The results are promising and within the next year or so it may be possible to prevent calf losses by vaccination of adult cattle.

Respectfully submitted,
A. M. JASMIN, D.V.M.,
Bacteriologist and Pathologist

REPORT OF THE CHEMIST

A total of 3,193 samples were analyzed in the past two years by the chemical laboratory. The total number of analyses performed on these samples was 12,615, representing milk tests, poison analyses, water analyses, blood tests for mineral and vitamin content, and miscellaneous analyses of other types.

There were 2,475 individual milk and cream samples analyzed; most of these were analyzed completely, including phosphatase tests on pasteurized samples. There were 1,062 milk samples checked for proper pasteurization, of which 14 were found to be improperly pasteurized. This means that 1.32% of the pasteurized samples were found to be improperly pasteurized. There were 472 cream samples checked for pasteurization and 6 of these, or 1.27% were found to be improperly pasteurized. There were no improperly pasteurized samples of half-and-half, skim milk or chocolate milk tested during the past two years.

Poison cases in the past two years were of the usual arsenic, lead and strychnine type although miscellaneous samples were checked for the presence of selenium and naphthalenes. There were also some hay samples tested for nitrates. Our experience shows that a great majority of the livestock poisoned in this state are poisoned by either arsenic or lead. Dogs or cats, on the other hand, are usually poisoned with meat containing strychnine.

MILK AND CREAM ANALYSES

July 1, 1952 — June 30, 1954

MILK:	July 1, 1952 to June 30, 1953	July 1, 1953 June 30, 1954	July 1, 1952 June 30, 1954
For butterfat content	(including 10 unofficial samples)	(including 8 unofficial samples)	(including 8 unofficial samples)
For solids not fat	(including 9 unofficial samples)	(including 6 unofficial samples)	(including 6 unofficial samples)
For total solids	(including 9 unofficial samples)	(including 6 unofficial samples)	(including 6 unofficial samples)
For lactometer reading	(including 9 unofficial samples)	(including 6 unofficial samples)	(including 6 unofficial samples)
For sediment test	(including 9 unofficial samples)	(including 6 unofficial samples)	(including 6 unofficial samples)
For phosphatase test indicating proper pasteurization	(including 5 unofficial samples)	(including 4 unofficial samples)	(including 4 unofficial samples)
For phosphatase test indicating improper pasteurization			
CREAM:			
For butterfat content	353	216	569
For phosphatase test indicating proper pasteurization	311	155	466
For phosphatase test indicating improper pasteurization	3	3	6
HALF & HALF:			
For butterfat content	72	37	109
For phosphatase test indicating proper pasteurization	72	37	109
CHOCOLATE MILK:			
For butterfat content	18	1	19
For phosphatase test indicating proper pasteurization	18	1	19
SKIM MILK:			
For butterfat content	6	2	8
For phosphatase test indicating proper pasteurization	6	2	8
TOTAL: (representing 1,542 individual samples)	6,844	(Representing 933 individual samples)	4,087

BLOOD SAMPLES FOR CHEMICAL ANALYSES

July 1, 1952 — June 30, 1953

Type of Blood	Phosphorus	Calcium	Magnesium	Carotene	Vitamin A	Total Samples	Total Analyses
Bovine	1	151	3	180	191	217	734
Ovine	1	1	—	—	—	1	3
Totals:	210	152	3	180	192	218	737

STOMACH CONTENTS, TISSUES, ETC., FOR POISONS

July 1, 1952 — June 30, 1953

Type	Arsenic	Lead	Strychnine	Cyanides	Miscellaneous	Total Samples	Total Analyses
Bovine	Pos. 8	Pos. 11	Pos. 2	Pos. —	Pos. —	15	248
Bovine	Neg. 108	Neg. 103	Neg. 30	Neg. 4	Neg. —	4	58
Canine	Pos. 18	Pos. 1	Pos. 1	Pos. —	Pos. —	33	10
Porcine	Neg. —	Neg. —	Neg. —	Neg. —	Neg. —	4	15
Equine	Neg. —	Neg. —	Neg. —	Neg. —	Neg. —	2	5
Ovine	Neg. —	Neg. —	Neg. —	Neg. —	Neg. —	6	13
Avian	Neg. —	Neg. —	Neg. —	Neg. —	Neg. —	3	9
Feline	Neg. —	Neg. —	Neg. —	Neg. —	Neg. —	3	3
Fur-bearing	Neg. —	Neg. —	Neg. —	Neg. —	Neg. —	3	7
Caprine	Neg. —	Neg. —	Neg. —	Neg. —	Neg. —	169	342
TOTALS	8	12	2	6	7	169	342

BLOOD SAMPLES FOR CHEMICAL ANALYSES

July 1, 1953 — June 30, 1954

Type of Blood	Phosphorus	Calcium	Magnesium	Carotene	Vitamin A.	Total Samples	Total Analyses	Total Samples	Total Analyses
Bovine	50	39	3	39	39	50	170	267	904
Ovine	50	39	3	39	39	50	170	268	907
Totals:	100	78	6	78	78	100	340	535	1811

STOMACH CONTENTS, TISSUES, ETC., FOR POISONS

July 1, 1953 — June 30, 1954

	Arsenic	Lead	Strychnine	Miscellaneous	Poisons	Total Samples	Total Analyses	Total Samples	Total Analyses
Bovine	Pos. 11	Neg. 73	Pos. 8	Pos. 3	Neg. 1	84	168	199	408
Canine	Pos. 1	Neg. 15	Pos. 15	Pos. 15	Neg. 3	31	48	64	106
Porcine	Pos. 6	Neg. 5	Pos. 5	Pos. 5	Neg. 14	6	14	10	24
Equine	Pos. 7	Neg. 7	Pos. 7	Pos. 7	Neg. 14	7	14	2	5
Ovine	Pos. 2	Neg. 1	Pos. 1	Pos. 1	Neg. 3	2	3	13	27
Avian	Pos. 1	Neg. 2	Pos. 2	Pos. 2	Neg. 1	1	2	5	9
Feline	Pos. 2	Neg. 2	Pos. 2	Pos. 2	Neg. 4	4	6	4	5
Fur-bearing	Pos. 2	Neg. 2	Pos. 2	Pos. 2	Neg. 4	4	6	4	6
Caprine	Pos. 2	Neg. 2	Pos. 2	Pos. 2	Neg. 4	4	6	3	7
TOTALS:	13	98	8	19	4	135	255	304	597

MISCELLANEOUS SAMPLES FOR POISON

July 1, 1952 - June 30, 1953

Material	Arsenic	Lead	Strychnine	Miscellaneous	Total Samples	Total Analyses
Weeds	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Water	Pos. 4	Neg. 3	Pos. 3	Neg. 3	7	7
Hay	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Pat's	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Tinfoil	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Cloth	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
White Powder	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Bread, Cracker, Meat	Pos. 3	Neg. 3	Pos. 3	Neg. 3	7	10
Plaster	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Egg Mash	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Battery	Pos. 4	Neg. 4	Pos. 4	Neg. 4	8	8
Feed	Pos. 2	Neg. 2	Pos. 2	Neg. 2	4	4
Salt	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Material from light plant	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Charcoal	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Unknown Substance	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Fibre from Oil Well	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Bovine Stomach Contents	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
(Gutzeit Test)	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Metal Pellets	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Black Dust	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Grain	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Ammoniated Phosphate	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
Grasshopper Bait	Pos. 1	Neg. 1	Pos. 1	Neg. 1	2	2
TOTALS:	3	22	3	11	32	51

MISCELLANEOUS SAMPLES FOR POISON

July 1, 1953 — June 30, 1954

Material	Arsenic		Lead		Strychnine		Miscellaneous Pos.	Miscellaneous Neg.	Total Samples	Total Analyses	7/1/52 - 6/30/54	
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.					Total Samples	Total Analyses
Weeds											1	2
Water											4	7
Hay		1		1					1	2	2	4
Oats									1		1	1
Tin foil									1		1	2
Cloth									1		1	1
White Powder						8					1	2
Bread, Cracker, Meat									7	12	14	22
Plaster											1	1
Egg Mash											1	4
Battery											2	3
Feed	2								2	2	8	10
Salt											1	1
Material from Light Plant											1	2
Charcoal											1	2
Unknown Substance											2	3
Fibre from Oil Well									1	2	1	2
Bovine Stomach Con- tents (Guthzeit Test)	2								2	2	2	2
Metal Pellets		1							2	2	2	2
Black Dust		1		1					1	2	1	2
Grain		3		3		3			3	9	3	9
Ammoniacal Phosphate		1							1	1	1	1
Grass-hopper Bait	1								1	2	1	2
TOTALS:	3	14	2	6		11			21	36	53	87

MISCELLANEOUS ANALYSES OTHER THAN POISONS

	July 1, 1952 June 30, 1953	July 1, 1953 June 30, 1954	Total
Water samples for mineral analyses	41	24	65
Oat hay for nitrates	2	1	3
Oat hay for protein	2	1	3
Laying mash for complete analyses	2	...	2
Blood sample for selenium	1	...	1
Roots identified as water hemlock	1	...	1
Pellets for protein	1	...	1
Sample of urine negative for albumin	1	...	1
Sample of urine negative for sugar	1	...	1
pH on water samples	3	...	3
Unknown substance identified as sodium chloride	1	...	1
Mineral mix for calcium	...	1	1
Mineral mix for phosphorus	...	1	1
Water sample for hydrogen sulphide content	...	1	1
Urine for acetone	...	1	1
Water for selenium content	...	4	4
Light pole scrapings for naphthalenes	...	1	1
Binding twine for naphthalenes	...	1	1
pH on stomach contents	...	1	1
TOTALS	56	37	93

INVESTIGATIONS SYNOPTICALLY ARRANGED INCLUDING COOPERATIVE WORK WITH THE UNITED STATES AGRICULTURAL RESEARCH SERVICE, ANIMAL DISEASE ERADICATION BRANCH

	7/1/52 6/30/53	7/1/53 6/30/54	Biennium Total
Horses			
Tested for brucellosis	5	5	10
Reactors	4	3	7
Encephalomyelitis			
Inspected	164	254	418
Cases	37	87	124
Miscellaneous Inspections			
Total	174	46	220
Inspected for Interstate Shipment			
Clinically inspected	587	535	1,122
CATTLE			
Tuberculosis			
Dairy cattle tested	10,334	4,503	14,837
Reactors	None	None	None
Stock cattle tested	7,267	8,819	16,086
Reactors	None	None	None
Accredited Tuberculosis-Free Herds			
Herds tested	4	5	9
Cattle tested	364	606	970
Reactors	None	None	None
Tests for Interstate Shipment			
Tuberculin tested	3,720	2,869	6,589
Reactors	None	None	None
Cattle Tested for Tuberculosis			
Total tested	21,685	16,797	38,482
Reactors	None	None	None
Cattle Inspected at Destination			
Number	951	4,075	5,026
Scabies			
Number inspected	12,950	5,536	18,486
Cases	40	None	40
Johne's Disease			
Inspected and tested	119	1,860	1,979
Reactors	13	34	47
Lice			
Inspected	1,546	None	1,546
Cases	27	None	27

	7/1/52 6/30/53	7/1/53 6/30/54	Biennium Total
Acetonemia			
Inspected	34	12	46
Cases	7	12	19
Actinomycosis			
Inspected	136	40	176
Cases	22	38	60
Bacillary Icterohemoglobinuria (Redwater Disease)			
Inspected	480	1,312	1,792
Cases	20	48	68
Vaccinated	7,204	977	8,181
Blackleg			
Inspected	2,714	1,804	4,518
Cases	67	152	219
Vaccinated	128	98	226
Brucellasis			
Blood samples tested in laboratory	73,677	167,132	240,809
Blood samples tested in field	28,323	29,940	58,263
Blood samples tested in trailer laboratory		28,444	28,444
Positive reactors	2,834	5,192	8,026
Percentage of reactors	.027	.023	.025
Suspicious reactors	2,947	5,311	8,258
Percentage of suspicious reactors	.028	.024	.026
Vaccinates		314	314
Percentage of vaccinates		.0014	.0014
Dairy cattle tested for sale at yards and auctions	2,188	1,528	3,716
Positive reactors	41	17	58
Suspicious reactors	62	45	107
Vaccinates		3	3
Calves officially vaccinated	129,029	203,532	332,561
Coccidiosis			
Inspected	12,818	2,581	15,399
Cases	889	195	1,084
Hemorrhagic Septicemia or Pasteurellosis			
Inspected	15,047	4,241	19,288
Cases	1,225	310	1,535
Vaccinated	3,029	1,318	4,347
Infectious Keratitis			
Inspected	3,747	2,770	6,517
Cases	406	609	1,015
Malignant Head Catarrh			
Inspected	1		1
Cases	1		1
Pododermatitis			
Inspected	5,892	729	6,621
Cases	399	141	540
Pulmonary Emphysema			
Inspected	454	958	1,412
Cases	87	169	256
Urinary Calculi			
Inspected	5,504	2,752	8,256
Cases	140	405	545
Miscellaneous Cattle Inspections			
Inspected for various diseases and conditions	32,437	33,193	65,630
Inspections for Interstate Shipment			
Inspected	272,997	248,126	521,123
SHEEP			
Contagious Ecthyma			
Inspected	1,610	1,552	3,162
Cases	559	254	813
Enterotoxemia			
Inspected	15,194	6,934	22,128
Cases	249	94	343
Foot Rot			
Inspected	32,053	5,807	37,860
Cases	232	91	323
Lip-and-Leg Ulceration			
Inspected	1,760	4,030	5,790
Cases	361	53	414
Scabies and Miscellaneous Diseases			
Inspected	46,089	20,328	66,417
Affected with scabies	0	0	0
Inspected and quarantined	92,652	68,391	161,043
Reinspection imported sheep*	84,915	33,040	117,955

*Includes contact native sheep and 1 or more re-inspections.

	7/1/52 6/30/53	7/1/53 6/30/54	Biennium Total
Inspections for Interstate Shipment			
Number	469,413	460,603	930,016
Swine			
Inspected for various diseases	7,610	3,451	11,061
Premises infected with hog cholera	12	3	15
Inspected for sarcoptic mange	370	56	426
Number infected	370	56	426
Inspected for interstate shipment	6,877	4,092	10,969
Inspected for erysipelas	398	948	1,346
Cases	76	204	280
Inspected for vesicular exanthema	6,054	2,109	8,163
Cases	0	20	20
Blood tested for brucellosis	4	15	19
Reactors	0	0	0
Poultry			
Inspected	56,124	24,418	80,542
*Tested for pullorum disease	*46,354	57,469	103,823
Reactors	49	275	324
*Plan hatcheries only			
Cats			
Inspected for interstate shipment	36	35	71
Vaccinated against rabies	229	139	368
Cases of rabies	0	0	0
Dogs			
Inspected for various diseases	4	2	6
Inspected for interstate shipment	817	801	1,618
Vaccinated against rabies	2,294	1,105	3,399
Cases of rabies	0	0	0
Goats			
Inspected for various diseases including brucellosis	48	56	104
Reactors	0	0	0
Inspected for interstate shipment	10	1	11
Foot-and-Mouth Disease			
Number inspected	42,204	8,982	51,186
Grand Totals			
Animals inspected and tested	1,447,911	1,383,072	2,830,983
Fowls inspected and tested	102,478	81,887	184,365
Miles Traveled by District Deputies			
State-owned vehicles	65,981	78,114	144,095
Privately-owned vehicles	222,163	163,009	385,172
Miles Traveled by Resident Deputies and Lay Inspectors			
Total	108,291	184,829	293,120
Total miles	396,435	425,952	822,387

RECAPITULATION OF IMPORTATIONS

July 1, 1952 - June 30, 1953

State	HC	Test Charts	Horses	Cattle Health Cert	Cattle Test Charts	Sheep	Swine	Dogs
Canada	77	10	1,106	37	17	9	....	....
Alaska	4	....	....	....	....	....	....	5
Arizona	16	6	21	112	107	....	....	3
Arkansas	7	....	....	....	....	....	....	8
California	41	....	8	96	....	2	....	27
Colorado	53	47	16	1,697	201	31	2	19
Connecticut	1	....	....	....	....	....	....	1
Florida	2	....	....	....	....	....	....	2
Idaho	178	1	61	4,703	2	7,744	154	35
Illinois	31	6	1	9	6	10	2	20
Indiana	1	1	....	....	1	....	....	1
Iowa	108	12	3	136	12	....	....	104
Kansas	7	19	....	340	118	....	....	3
Kentucky	1	1	....	....	1	....	....	1
Louisiana	1	....	....	574	....	....	....	....
Mexico	6	....	....	2,640	....	....	....	....
Maryland	4	....	....	2	....	....	75	....
Massachusetts	1	....	....	....	....	....	....	1
Minnesota	147	48	7	152	453	....	10,872	70
Michigan	3	....	....	1	....	....	1	1
Mississippi	1	....	....	....	....	....	....	1
Missouri	11	3	....	233	3	....	....	9
Nebraska	119	14	4	609	132	6,838	11,193	15
New Jersey .....	....	1	....	....	2	....	....	....
New Mexico	40	....	13	3,267	....	....	....	....
New York	1	....	....	....	....	....	....	1
N. Dakota	286	24	8	3,835	180	3,388	4,506	20
Ohio	12	....	....	7	....	1	....	9
Oklahoma	4	....	....	29	....	....	....	1
Oregon	92	2	32	112	2	14,548	....	42
S. Dakota	74	10	1	515	42	6,390	150	16
Texas	105	8	67	15,067	69	318	....	7
Utah	34	2	3	952	4	1	....	17
Vermont	1	....	....	1	....	....	....	....
Washington	208	28	103	959	190	80,313	84	164
Wisconsin	29	42	....	64	575	2	3	25
Wyoming	405	63	46	6,670	445	16,977	2,048	19
Totals:	2,111	348	1,500	42,819	2,562	136,572	29,090	647

RECAPITULATION OF IMPORTATIONS

July 1, 1953 - June 30, 1954

State	HC	Test Charts	Horses	Cattle Health Cert.	Cattle Test Charts	Sheep	Swine	Dogs
Canada	124	14	1,481	294	131	61	86	...
Alaska	6	...	...	...	...	...	...	4
Arizona	19	2	33	200	2	...	...	2
Arkansas	19	1	...	14	55	...	...	19
California	44	2	58	29	9	...	1	36
Colorado	118	20	66	5,317	208	...	1	23
Idaho	186	2	25	9,427	2	5,811	23	32
Illinois	36	5	...	22	19	510	1,291	13
Indiana	1	1	...	...	1	...	...	1
Iowa	180	9	8	55	22	1	11,049	95
Florida	1	1	...	45	11	...	...	...
Georgia	1	...	...	...	...	...	...	1
Kansas	10	17	...	398	60	...	...	6
Kentucky	4	...	...	8	...	...	...	4
Louisiana	3	...	...	129	...	...	...	...
Massachusetts	1	...	...	...	...	...	...	1
Michigan	4	1	4	...	1	...	...	...
Minnesota	92	97	5	295	1,060	358	1,559	48
Mississippi	...	1	...	...	1	...	...	...
Missouri	16	9	...	41	29	...	...	18
Nebraska	210	20	2	179	78	...	21,774	40
New Mexico	32	1	14	4,090	1	...	...	...
New Jersey	...	3	...	...	3	...	...	...
New York	...	1	...	...	18	...	...	...
N. Dakota	373	5	3	3,296	10	3,140	8,305	31
Oklahoma	6	1	...	218	23	...	...	1
Ohio	11	...	2	...	...	2	...	10
Oregon	126	...	17	308	...	26,108	120	48
S. Dakota	148	13	2	1,998	88	4,307	205	8
Tennessee	1	...	...	1	...	...	...	...
Texas	101	15	19	20,093	291	1	...	6
Utah	30	29	7	723	2	193	1	6
Washington	195	38	80	635	402	55,524	4,705	96
Wisconsin	41	45	14	133	854	1	...	21
Wyoming	334	179	70	6,804	802	8,985	320	28
TOTALS:	2,473	532	1,910	54,752	4,183	105,002	49,440	598
7/1/52-6/30/53:	2,111	348	1,500	42,819	2,562	136,572	29,090	647
7/1/53-6/30/54:	2,473	532	1,910	54,752	4,183	105,002	49,440	598
Biennium:	4,584	880	3,410	97,571	6,745	241,574	78,530	1,245

THE MONTANA VETERINARY RESEARCH LABORATORY

by

DR. E. A. TUNNICLIFF, Head

Montana Veterinary Research Laboratory

Bozeman, Montana

in the last biennial report, attention was directed to the building then under construction for the Montana Veterinary Research Laboratory. It was completed early in 1953. The moving from the old building was completed and the formal dedication held May 23, 1953.

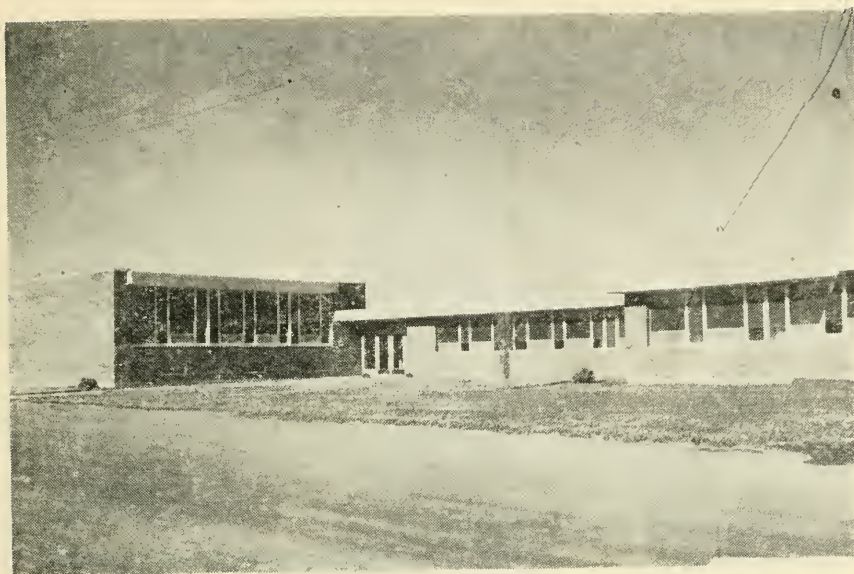


IN THE HUIDEKOPER LIBRARY FOR THE DEDICATION CEREMONY.

L. to R.: Dr. R. R. Renne, President, Montana State College and Colonel Wallis Huidekoper, and Dr. H. C. Gardiner, of the Montana Veterinary Research Laboratory Advisory Committee and Dr. E. A. Tunnicliff, Head of the Montana Veterinary Research Laboratory.

The formal presentation of the Huidekoper Library was made by Colonel Huidekoper and accepted by President Renne on behalf of the Montana Veterinary Research Laboratory, March 5, 1954. This generous gift was the result of a long experience and service with the Montana cattle industry and service as a member of the Advisory Committee to the Montana Veterinary Research Laboratory since its organization in 1929.

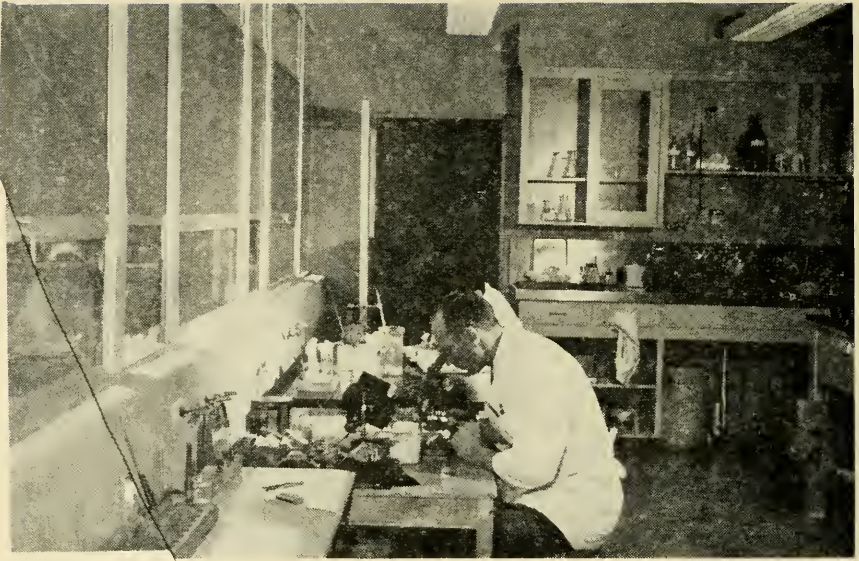
The Huidekoper Library is a room 28 by 16 feet. The walls are painted a pleasing mauve color with green pull drapes at the windows. The stacks and furniture are of solid white oak.



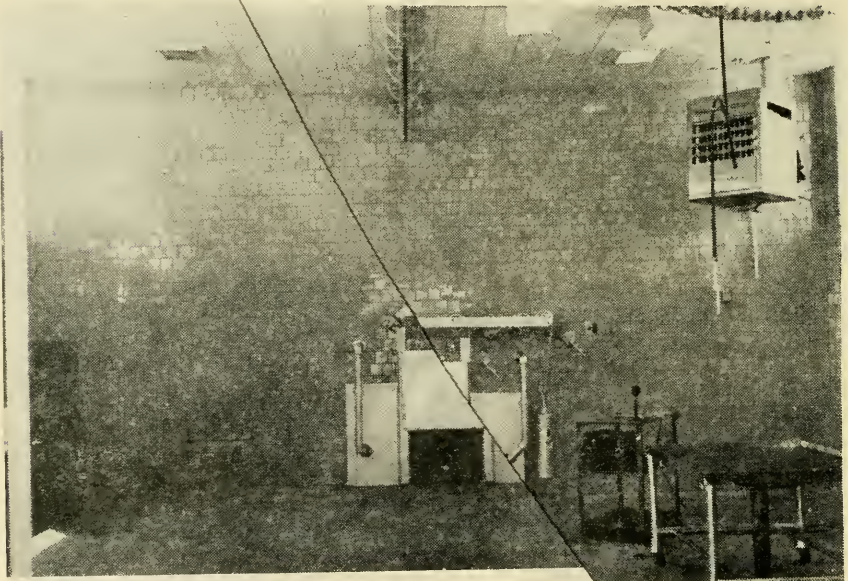
**The new Montana Veterinary Research Laboratory
dedicated May 23, 1953.**



.. Lee Seghetti, Parasitology Section



Bacteriological Section — Dr. L. DS. Smith examining bacteria under microscope and Mr. Tats Matsuoka in background.



Autopsy-Incinerator Building showing interior west wall, incinerator door, control panel, overhead pulley, track and floor.

The New Laboratory

The building is a modern styled one-story structure containing approximately 10,000 square feet. The construction is of steel, and hollow tile faced with brick. It is 170 feet long, with one wing 82 feet wide and the other 63 feet wide. The center section of the building is 41 feet wide. It cost approximately \$170,000.

The building is designed in two units—administrative and laboratory. The administrative section contains the general office, private offices and a large lecture room which is used as a class room and a meeting room. It will seat some 150 people and can be used without interfering with the functions of the laboratory unit. The laboratory unit contains adequate library facilities, research laboratories for chemistry, virology, pathology, bacteriology and parasitology. There are constant temperature cold and warm rooms, a photography room, a room for preparation of histological sections, a small animal post-mortem room, a small animal room and preparation room. All of the laboratories are well equipped with modern instruments, provided in part by funds and appropriations sponsored by the Montana Wool-growers' and Stockgrowers' Associations.

Conveniently grouped around the laboratory are corrals and chutes for the handling of sheep and cattle, two infectious disease wards, a newly completed autopsy incinerator building 26 feet by 40 feet, a cattle nutrition shed, a lambing shed and another one used for mouse, rabbit, and guinea pig rearing purposes. There is ample storage and shed space for present needs. In addition to the corrals and small pastures immediately joining this group of buildings, there is a 40-acre pasture nearby.

The remodeling and modernizing program began in 1949 and is just about completed at the present writing, except for the improvements to be made from time to time as the work demands. The entire animal disease research center now stands at a cost of approximately \$250,000. Of this sum some \$25,000 has been obtained thru private donations to the laboratory.

Research Problems

The major active research program during the past biennium consisted of sheep vibriosis, urolithiasis of steer calves, redwater or icterohemoglobinuria of cattle, minerals and vitamin studies of range cattle blood, parasites of sheep and cattle, pulpy kidney or enterotoxemia of lambs and white muscle disease of lambs and calves. The less active projects were ulcerative dermatosis of sheep, sheep mastitis and lung disease of sheep.



1847

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